



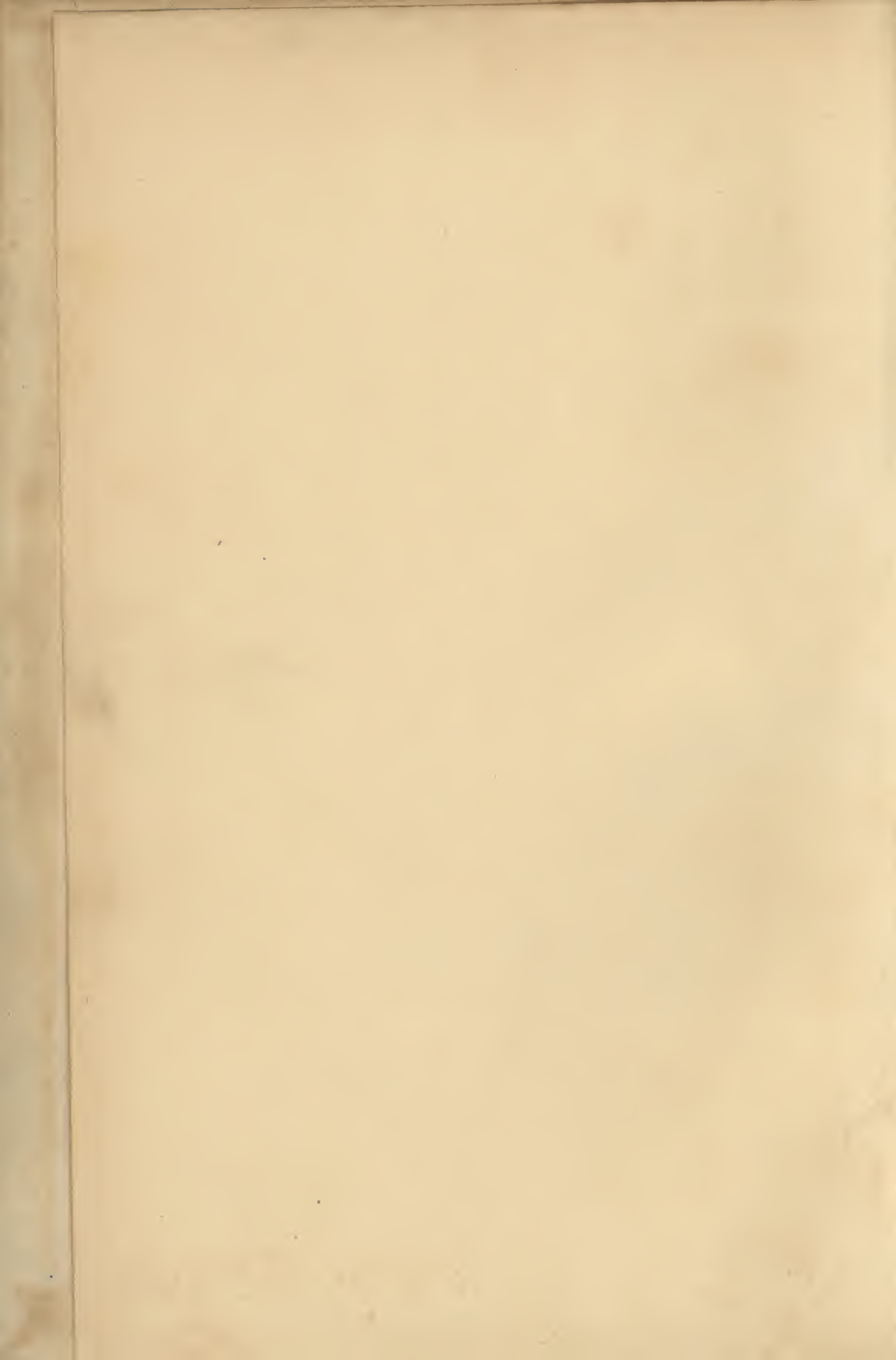
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MAY 1st, 1929, CATALOG

WHITEHEAD METAL PRODUCTS CO.

OF NEW YORK, INC.

304 HUDSON STREET, NEW YORK, N. Y.



EXCLUSIVE
EASTERN
DISTRIBUTORS
OF



Monel Metal and Pure Nickel Products

PRODUCED BY

The International Nickel Company, Inc.

DISTRIBUTORS



Anaconda Brass and Copper Products

MANUFACTURED BY

The American Brass Company

BRANCH OFFICES AND WAREHOUSES

725 ARCH STREET
PHILADELPHIA, PA.

67 WASHINGTON STREET, NO.
BOSTON, MASS.

95-20 — 150TH STREET
JAMAICA, L. I., N. Y.

215 FRELINGHUYSEN AVENUE
NEWARK, N. J.

319 NIAGARA STREET
BUFFALO, N. Y.

BUSH TERMINAL BLDGS. 8 AND 9
BROOKLYN, N. Y.

"The Quality Metals of Industry"

MONEL METAL PURE NICKEL COPPER
BRASS BRONZE NICKEL ALLOYS

WITHOUT them progress in any industry, whether mechanical, scientific or artistic, would not be possible.

Modern methods of production have made it possible to supply all of these "Quality" metals at prices quite in harmony with present-day needs, and which establish the first costs on a basis well within practical financial limits. Each of these metals is practically everlasting. Each has its own qualities of resistance to wear and corrosion under varying conditions of industrial and mechanical use. It is possible to select one or more of these metals for a particular application, so that the especial adaptability of the metal for the purpose may be utilized and its own everlasting qualities may be retained.

It follows, therefore, that when this selection is properly made the service rendered by the metal will extend over a period of time sufficient to make the first cost an inconsequential item.

In the past several years the industrial world has become aware of the tremendous losses involved in the destruction by rust and corrosion of machinery and plant equipment, as well as roofing materials and building trim. The labor costs in replacements have been prohibitive. In an effort to avoid these replacements attention has been focused on the "Quality Metals of Industry" listed above.

In addition to a widespread use of Copper, Nickel and Monel Metal, many alloys have been made of Copper, Nickel and Zinc in varying proportions. A number of these alloys have proven to be of value in actual service and have become standard.

It is our thought that a list of these standard alloys, with descriptions of their various qualities expressed in non-scientific terms, would be of interest to the Metal Industry, and we have, therefore, included them in this book.

We have a staff of competent engineers—chemists and metallurgists who are available to give assistance to those who may have corrosion problems or manufacturing difficulties. These services we gladly offer to assist in the proper selection of a metal, and to help with information as to the working of that metal.

Our seven warehouses contain over 8,000,000 pounds of the "Quality Metals of Industry" in a wide variety of sizes and shapes and almost any normal requirement can be met from these stocks at once.



J. B. Whitehead
President.



Terms of Sale

PRICES: Subject to change without notice and all quotations made by this Company or its Agents, unless otherwise agreed, are binding only for immediate acceptance.

TERMS: Cash in 30 days, or the following discounts allowed if payment is made in 10 days from date of invoice:

- All Monel Metal and Nickel products $\frac{1}{2}$ of 1%.
- Brass, Bronze, Copper and Nickel Silver Sheets, Rods, Tubes and Accessories, 1%.
- Brass, Bronze and Nickel Silver Wire, 1%.
- Copper Wire and Cable, $\frac{1}{2}$ of 1%.
- Leader and Gutter and Roofing Accessories, 1%.
- All Grades of Solder, 1%.

OWNERSHIP OF TOOLS: All Dies, Tools, etc., remain the exclusive property of this Company. This is not affected by any charge made to cover labor and expense involved in altering or making such new Dies, Tools, etc.

RESPONSIBILITY FOR DELAYS: This company will not be responsible for delays in deliveries when such delays are caused by reason of Strikes, Fires, Accidents or other causes beyond its control.

ADJUSTMENT OF CLAIMS: When material of any kind furnished by this Company is defective or not up to standard it will be accepted back or replaced. In all cases permission from this Company must be obtained before material is returned. Under no circumstances will claims be allowed for damages or any expense incurred by the use of such material.

CRATING, BURLAPPING, BOXING OR SPECIAL PACKING: Will be charged at cost unless otherwise agreed upon.

FREIGHT ALLOWANCES: No freight will be allowed on orders which do not permit shipment of at least 500 lbs. net at one time. (Brass and Copper Alloys only.)

CREDIT: Accounts will be opened only with responsible firms and individuals satisfactorily rated with the mercantile agencies or those furnishing satisfactory references. This Company reserves the right to cancel or hold up any orders wherein doubt as to the buyer's responsibility develops. We shall not be held liable in whole or in part for non-performance when this fact establishes itself.

CANCELLATION OF ORDERS: For special materials will not be accepted without our written consent.

CONFIRMATION ORDERS: Confirmation orders should be plainly marked across the face with the word "Confirmation" in large letters. Unless they are so marked, confirmation orders may be treated as originals and filled in duplicate. In such instances we will not be responsible for the expense and inconvenience involved.



Rules to Observe in Ordering

In meeting all requirements of the trade, so many different alloys, tempers and anneals must necessarily be used, that it is hardly practicable to outline the kind or quality of material best suited for a particular purpose.

Therefore, in addition to information regarding thickness, width, length and temper; which should invariably appear on each order; it is essential that initial orders should state plainly the purpose for which the material is intended and so far as possible how it is to be worked. A sample or blue print will aid in determining the proper materials required.

GAUGE

The adoption of the Micrometer Caliper to determine the thickness of metal or the size of wire in decimal parts of an inch, and the abolition of all gauge numbers when ordering, is strongly recommended. This will prevent confusion, expense and loss of time.

All gauge numbers applying to orders for Brass, Bronze and Nickel (German) Silver in the form of Sheet, Wire, Rod and Brazed Tube will be interpreted according to the American or Brown & Sharpe's Standard unless otherwise specified.

All Seamless Tubing, including Nickel Seamless Tubing and Gas Welded Monel Metal, is governed by Stubs' Gauge unless otherwise specified.

Monel Metal and Pure Nickel Sheet and Rod is measured by the United States Standard Gauge.

Copper Sheet, Roll and Strip may be ordered according to Brown & Sharpe's or Stubs' Gauge but, it is well to specify the weight per square foot or the decimal equivalent.

DIAMETER MEASUREMENTS

When ordering all Tubes, state whether the diameter given is "inside" or "outside" otherwise it will be considered that outside measurements are required; excepting, copper-smiths' sizes and Standard Pipe Sizes which are covered by Standard Tables.

ANNEALS AND TEMPER

All materials are produced annealed to various degrees of softness and rolled or drawn to various tempers, to meet special requirements.

The character of either the Anneal or the Temper should always be specified, but in the absence of any instructions, Sheet Brass will be shipped annealed suitable for drawing. The tempers commonly ordered for Sheet Brass are "soft," "half hard," "hard," and "spring."

Wire, Rods, Seamless and Brazed Tubes will be shipped commercially hard unless otherwise ordered, with the following exceptions:

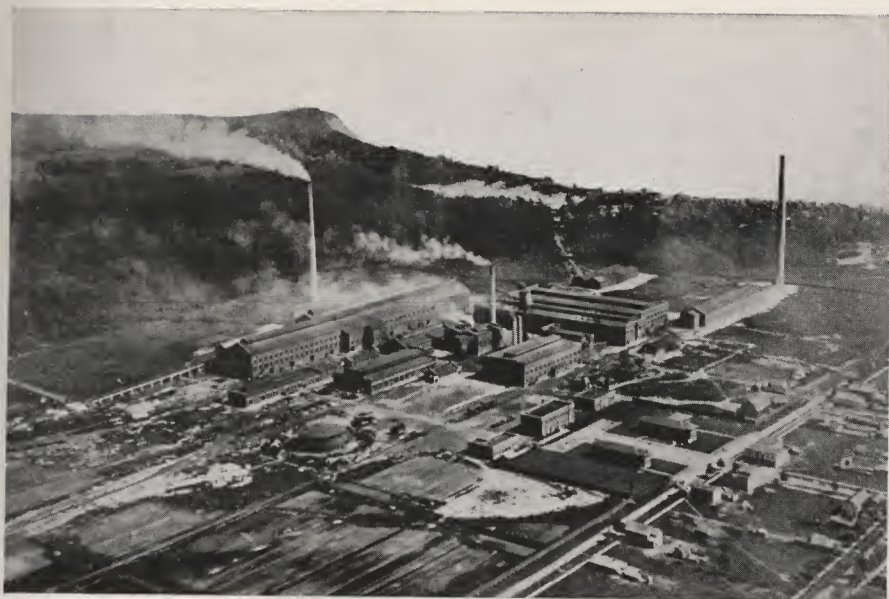
Condenser, Heater, Standard Pipe Sizes and other Special Tubes, where the requirements are known.

Nickel Silver Wire and Copper Wire which are commonly supplied annealed.

TUBES FOR BENDING

It will be of great assistance in executing orders for tubing, if it is particularly mentioned when stock is required for bending, coiling or flanging.

When there is uncertainty as to what quality of material is wanted, additional instructions will be requested.



REFINERY AT PORT COLBORNE

N I C K E L

METALLURGICAL history contains no more interesting records than those which relate to the mining, smelting and refining of nickel. Metals, like people, possess the defects of their qualities and nickel is no exception. Against the fact that nickel offers unique properties for a bewildering number of services and surpasses almost all other materials in its powers of endurance, we have to set the fact that nickel is a difficult metal to produce. To obtain the metal from the ore involves a long series of costly operations, highly technical in character, but fortunately the elaborate plants devoted to the production of INCO nickel and Monel Metal have made them certain in result.

Early Users of Nickel

WE are justified in saying that nickel was used by ancient Oriental peoples because we know that both in China and Persia, implements and swords were fashioned from meteoric iron and that meteorites normally consist of nickel bearing irons. The use of these fallen masses of metal emanating from interplanetary space probably explains the references to "Heaven sent weapons" which occur in old legends.

Another unwitting use of nickel is also attributed to the Chinese who used a natural alloy of nickel, "paktong", or white copper, for their coinage. "Paktong" was a rough reddish-white metal but that it had lasting qualities is quite evident for there are still specimens of this old coinage in existence.

Why Nickel Was So Named

ATTEMPTS to obtain nickel from the ore were first attempted at Schneeberg in Saxony, where fresh lodes of glittering ore were discovered in the middle of the eighteenth century. These attempts were uniformly unsuccessful. Instead of finding a virgin-white, precious metal, ductile, malleable and indestructible by fire, as the miners hoped, all they succeeded in obtaining was a brittle, friable product that was utterly useless. Believing the devil to have bewitched their ores, the German miners named the ore "Kupfer-Nickel", after "Old Nick", and confined their efforts to smelting the ores which they knew.

Meanwhile, in Helsingland, Cronstadt had succeeded in smelting a similar ore and producing nickel. Curiously enough, the epithet given to the ore by the German miners clung to the new element, for in all languages today, the metal is named "nickel".

Vastness of the Canadian Deposits

SINCE Cronstadt's time, it has been found that nickel ores are widely scattered throughout the world. Nickel is to be found in Europe, Africa, India, China, South America, Cuba and in various localities in the United States. Surpassing all other deposits, however, are those which are found in the Sudbury district of Canada from which ninety percent of the world's nickel is today obtained.

The mining position of nickel is probably unique in the way the industry is centralized. The largest of the known deposits of nickel ore in the world are concentrated in Ontario within a compact area roughly 36 miles long and some 16 miles wide, and there is enough nickel here to provide the world with its requirements for hundreds of years to come. In no other place in the world has nickel been discovered in quantities approaching those which are to be found in Canada nor can nickel be produced anywhere else so economically.

The Canadian Nickel industry was started in 1886 by S. J. Ritchie of Akron, Ohio, who built over 100 miles of railway to tap what he supposed to be huge deposits of iron ore. In this venture, he was disappointed and hearing that there was a mountain



SMELTER AT COPPER CLIFF



SHAFT HOUSE AT CREIGHTON MINE

of copper near Sudbury, he extended his railway in this direction hoping to obtain freight to solve his enterprise. The mountain of copper presently was discovered to be a mountain of copper-nickel ore and in attempting to smelt it, Mr. Ritchie came up against the same difficulties which had baffled the Saxony miners a century before. How these difficulties were resolved would make a very long story but that they were resolved was mainly due to the enterprise and resolute qualities of a certain Col. Thompson of Constable Hook, New Jersey and Mr. Ritchie. The consolidation of the two companies of which they were the respective heads, formed the nucleus of The International Nickel Company which was incorporated in the year 1902 and resulted in the Canadian nickel business attaining a stable position.

Creighton Mine

PASSING quickly over the intervening years, we find The International Nickel Company today in possession of high resources in the form of ore, splendid facilities for the production of nickel, and a very wide market for the products. The chief ore body worked by this Company today is the Creighton Mine which is located at Copper Cliff near Sudbury, Ontario and which supplies the whole of the company's requirements. The Creighton ore body is not only the largest nickel mine, which is being worked, in the world but is also one of the greatest metalliferous mines of any kind. Its known depth is greater than 2,400 feet, its maximum length is about 1,000 feet and its width on the surface is about 180 feet. But even this huge mine is to be eclipsed by the Frood Mine which is now being developed and which contains at least 100,000,000 tons of commercial grade nickel-copper ore. This mine will be numbered among the largest in the world and the equipment and capacity for hoisting ore will be in keeping with its dimensions.

Nickel ore is obtained by drilling and blasting. In the "stopes", over 100 rock drills are always at work, some of which are 24 feet in length. The ore and rock against which these drills have to work is so hard that over 1,200 pieces of steel are needed daily in the drilling machines.



BIG EDDY DAM

The main levels in the mine are equipped with tracks along which trains of heavily built steel cars are drawn by storage battery locomotives. The ore is crushed by powerful machines before being brought to the surface. Creighton Mine was the first mine in the country to install a system of crushing underground, and its shafthouse is one of the highest in the world.

The High Falls Power Plant

POWER is consumed in immense quantities in mining and smelting operations and in order to produce nickel at an economical price a cheap supply is essential. Steps were taken to obtain this in the early days of The International Nickel Company by the erection and development of the High Falls Hydro-Electric Power Plant.

High Falls is 28 miles from Copper Cliff where the smelter is located. At this point the river flows on both sides of an island 2,000 feet long by 900 feet wide, the center of which stands at an elevation of 75 feet above the upper water level. There is a natural fall of water of 65 feet above the upper water level. There is a natural fall of water of 65 feet on both sides of the island. The situation is thus ideal for power purposes.

The main power house is a large concrete and brick building containing four generating sets, the capacity being 2,000 K. W. A. The power generated is three-phase, 2,600 volts, 25 cycles and is transformed to 33,000 volts for transmission to the various substations located at the mines and smelter at Copper Cliff. There is a separate building known as No. 2 Power House which provides additional generator capacity.

Large capital expenditures have been made to improve the conservation and regulation of the water at the Upper Lakes of the Spanish River. A new concrete storage dam was completed in 1920. The Big Eddy Dam, as the new structure has been named, is located about $\frac{3}{4}$ of a mile above the old power plant and impounds the upper waters of the Spanish littoral. The level of the impounded water is raised about 100 feet above the river and backs up the water for a distance of 25 miles. Electric power is required for the locomotives, pumps, hoisting engines, crushing and sorting machinery, and for heating at the mines. To furnish compressed air for drilling and for the blast furnaces

and converters requires large amounts of power as does the general mechanical equipment in the shops. The towns of Copper Cliff and Creighton are also supplied with electric current generated at the High Falls Power Plant.

Smelting and Refining

THE smelting operations involved in the production of INCO Nickel are undertaken at Copper Cliff, the refining operations being carried out at Port Colborne. The products of the Port Colborne plant include electrolytic nickel of highest grade for remelting in production of alloys, nickel anodes for nickel plating and shot and ingot nickel. Black nickel oxide used in enamels and as a decolorizer in the manufacture of glass and green nickel oxide used for the same purpose are also produced.

The Huntington Mill

THE rolling mill operations by which the commercial forms of nickel and Monel Metal are produced resemble the operations used in the manufacture of steel and the equipment necessary is not very different from standard steel-mill equipment. In order to insure that all products supplied by The International Nickel Company shall meet the high standards required by their customers, a new mill was erected at Huntington, W. Va., and opened in 1921. This mill embodies the most modern practice and is one of the most up-to-date rolling mills in the country. Large stocks of both nickel and Monel Metal are carried at Huntington. Monel Metal is furnished in a variety of forms such as sheet, rods, tube, castings, forgings, strip, wire cloth, stampings, rivets, bolts, nuts, nails, screws, tacks, drawn products, wire, etc., etc.

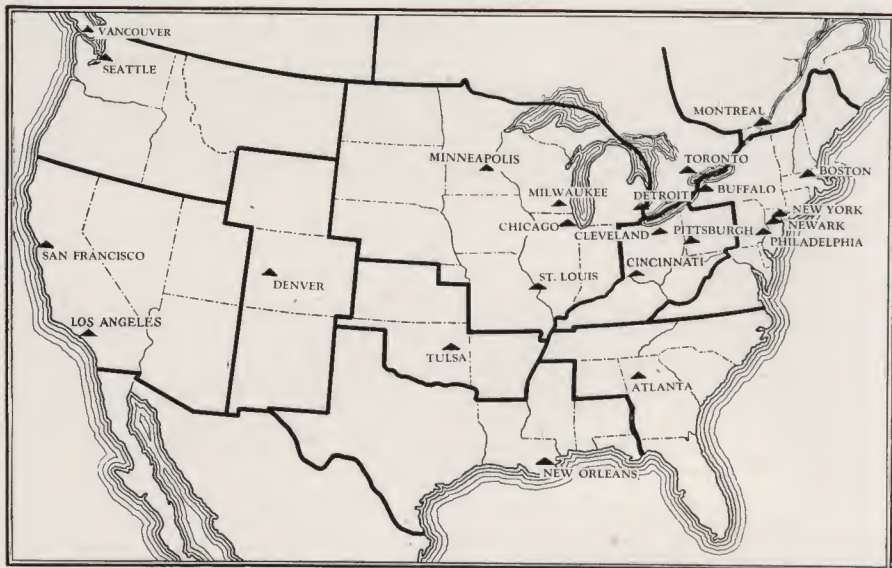


BIRD'S-EYE VIEW OF ROLLING MILLS AT HUNTINGTON, WEST VIRGINIA

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



DISTRIBUTING POINTS FOR MONEL METAL AND PURE NICKEL



Warehouse Stocks Carried by all Distributors

ATLANTA
J. M. TULL RUBBER & SUPPLY CO.
285 Marietta Street

BOSTON
WHITEHEAD METAL PRODUCTS
Co. of New York, Inc.
67 Washington Street, North

BUFFALO
WHITEHEAD METAL PRODUCTS
Co. of New York, Inc.
319 Niagara Street

CHICAGO
STEEL SALES CORPORATION
129 South Jefferson Street

CINCINNATI
WILLIAMS & COMPANY, INC.
2118 Spring Garden Ave.

CLEVELAND
WILLIAMS AND COMPANY, INC.
1846 East 23rd Street

DENVER
HENDRIE & BOLTHOFF MFG.
& SUPPLY CO.
1621 17th Street

DETROIT
STEEL SALES CORPORATION
3-218 General Motors Building

LOS ANGELES
PACIFIC FOUNDRY COMPANY
1016 West 9th Street

MILWAUKEE
STEEL SALES CORPORATION
490 Broadway

MONTREAL
ROBERT W. BARTRAM, LTD.
277 Duke Street

NEWARK
WHITEHEAD METAL PRODUCTS
Co. of New York, Inc.
215 Frelinghuysen Avenue

NEW ORLEANS
EQUITABLE EQUIPMENT
COMPANY, INC.
410 Camp Street

NEW YORK
WHITEHEAD METAL PRODUCTS
Co. of New York, Inc.
304 Hudson Street

PHILADELPHIA
WHITEHEAD METAL PRODUCTS
Co. of New York, Inc.
725 Arch Street

PITTSBURGH
WILLIAMS AND COMPANY, INC.
901 Pennsylvania Avenue

ST. LOUIS
STEEL SALES CORPORATION
4030 Chouteau Avenue

SAN FRANCISCO
PACIFIC FOUNDRY COMPANY
Harrison and 18th Streets

SEATTLE
EAGLE BRASS FOUNDRY
COMPANY
21 Spokane Street

TORONTO
PECKOVER'S LIMITED
Foot of Market Street

TULSA
HARRISBURG SUPPLY COMPANY
213 First Street East

EUROPE—MONEL-WEIR, LTD., Cathcart, Glasgow, Scotland

AUSTRALIA—FERRIER & DICKINSON, LTD., 26 Clarence Street, Sydney

NEW ZEALAND—DICKINSONS LTD., Cor. Police and Prince Sts., Dunedin

VANCOUVER, B. C.—WILKINSON COMPANY, LTD., 190 Second Ave., West

INCO
MONEL METAL
AND
PURE NICKEL

SHEETS	TUBES
PLATES	PIPE
STRIPS	FITTINGS
RODS	WIRE
FLATS	INGOTS
ANGLES	SHOT
ACCESSORIES	
CASTINGS	



INCO MONEL METAL AND INCO PURE NICKEL

MONEL METAL is a technically controlled Nickel Copper alloy of high nickel content. It is mined, smelted, refined, rolled and marketed by The International Nickel Company. The name "Monel Metal" is a registered trade mark. It is sold to consumers through exclusive distributors of the above company in various parts of the United States and Europe. A list of these agents will be found on the preceding page.

Because of its inherent superlative qualities which combine resistance to corrosion with a high tensile strength and also the ability to withstand the erosive action of superheated steam it is adaptable to varied uses in industry. The toughness of this metal has also enabled it to stand unbroken by the Izod Impact test.

Some of the uses of Monel Metal and Nickel are outlined in this catalog. Among the industries using these metals might be mentioned the following:

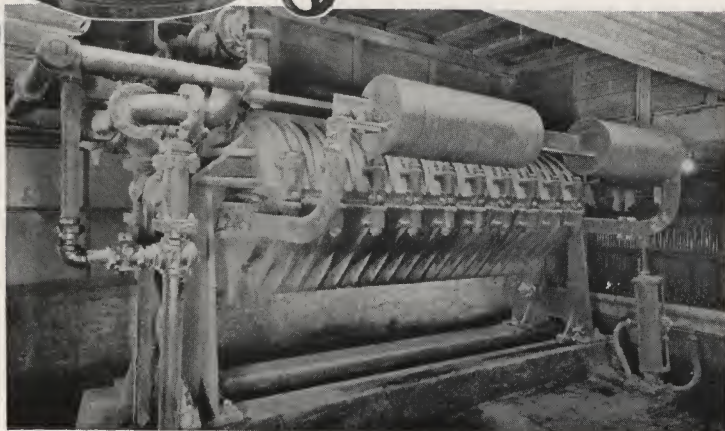
Architectural	Hotel	Pickling (metals)	Sheet Metal
Canning	Ice Cream	Power	Soda Fountain
Chemical	Laundry	Pump Rod	Textile Dyeing
Dairy	Meat Packing	Refrigeration	
Hospital	Motor Boat	Restaurant	

PURE NICKEL is a white, malleable and ductile, also, somewhat magnetic metal harder and stronger than iron and of a high melting point. It has a remarkable resistance to the action of air and water, and non-oxidizing acids, fused alkalies and of salts either fused or in aqueous solution. It is used in numerous applications when the copper content of Nickel Copper alloys is objectionable. The U. S. Department of Agriculture places no ban on the nickel content of foodstuffs because of the salts being non-toxic in character. It is largely used in the manufacture of Dairy Equipment because of this main characteristic.

The following pages will outline the various methods employed in the manufacture and production of Monel Metal and Nickel in their commercial mill forms. These pages will also tend to acquaint you with the combination of superior physical qualities of these metals. The price extras, lists of stock sizes, tables of weights and other descriptions will assist you to save valuable time in determining the proper costs and products for your work.



MONEL METAL
VARNISH KETTLE



PRESS IN WHICH MONEL METAL FILTER CLOTH IS USED

Monel Metal and Nickel in the Process Industries

NEW processes, new products and higher standards of purity have greatly increased the number of services which Monel Metal and Pure Nickel are called upon to perform in the chemical and allied fields. Equipment fabricated from Monel Metal is being used for the processing of such widely diversified products as: Ammonium sulphate fertilizer, infant's food, sodium salicylate, black liquor, acidophilus bacillus blocks, caustic soda, varnish, concentrated fruit juices, coal tar products, milk of magnesia, carbon tetrachloride, dyestuffs, epsom salts, carbolic acid, salt, sugar, and a wide variety of food products.

This is far from being a complete list of the products handled by Monel Metal equipment, but it does give some idea of the great variety of products whose corrosive effect Monel Metal and nickel equipment will successfully withstand. Many of these products require processing with a minimum of contamination and the properties of Monel Metal and Pure Nickel result in products of high purity. These properties, together with great strength and toughness, and availability in all commercial forms, make Monel Metal and Pure Nickel practically indispensable to the Process Industries.

For the most part chemical service problems call for individual attention and specialized knowledge. Completely equipped research laboratories are operated by The International Nickel Company, Inc., in the investigation of chemical, metallurgical and physical problems of their clients. The technical service staff will gladly study technical problems in the field as well as in the laboratory and is only too willing to work with the engineers and chemists of interested companies.



DESCRIPTION OF

INCO MONEL METAL AND PURE NICKEL PRODUCTS

FULL FINISHED SHEET—The Full Finished Sheet is a hot rolled, annealed, pickled, 4 to 6 pass cold rolled, re-annealed and patent leveled sheet. This sheet has heretofore been designated a "Hot Rolled Sheet" but developments of the process have improved the finished product so that it is now a "Full Finished Sheet." It is flat; is used where appearance and smoothness of surface are important; can be used in moderate drawing and all bending operations, including lock seaming, and is readily soldered and welded. This sheet can be secured in three standard finishes: (a) standard, (b) No. 3—Satin Ground Finish, and (c) No. 4—Ground and Buffed finish. It is furnished in one temper only—soft annealed. Special tempers can be obtained in cold rolled sheet and strip only.

COLD ROLLED SHEET—The Cold Rolled (soft) Sheet is produced by hot rolling, annealing, pickling, full cold rolling, re-annealing and patent leveling. It can also be furnished in various tempers, such as: dead soft, soft, skin hard, quarter hard, half hard, etc., which are obtained by cold rolling after annealing to the extent required to give the necessary degree of hardness.

It is used: (1) where an exceptionally high finish is required, (2) where the greatest degree of ductility obtainable is desired or (3) where a special temper is needed. It is flat except in the case of tempers of quarter hard or harder which are wavy.

HOT ROLLED PLATE—Hot Rolled Plate is produced by hot rolling slabs to plate sizes and thicknesses. The plate carries a superficial oxide coating dark in color and the surface is comparable with the better grades of steel plate.

All plate is furnished in the "As Rolled" condition. Plates not exceeding 55" in width can be furnished in the annealed condition if so required.

HOT ROLLED RODS—Hot Rolled Rods and Flats, as rolled, bear a thin oxide coating, black in appearance on Monel Metal and dark brown in the case of Pure Nickel; the surface is similar to that found on the better grade of other hot rolled products. This product is normally furnished in the "as rolled" condition, but in special instances where a light colored surface is required, a "bright annealed" rod can be furnished. On such a rod the oxide coating is reduced.

COLD DRAWN RODS—Cold Drawn Rods and Flats are produced from hot rolled rod which is annealed, pickled and drawn to size in two or more cold drawing operations. The drawn rod is then given a "stress relief" anneal and is straightened. The "stress relief" does not soften the rod nor does it lower the physical properties of the rod as drawn, but, as the name implies, it relieves the inequalities of internal stress developed in cold drawing.

Soft annealed rod is furnished upon special order.

HOT ROLLED ANGLES—Hot Rolled Angles as rolled, bear a thin oxide coating, black in appearance on Monel Metal and dark brown in the case of Pure Nickel; the



DESCRIPTION OF INCO MONEL METAL AND PURE NICKEL PRODUCTS
(Continued)

surface is similar to that found on the better grade of other hot rolled products. This product is normally furnished in the "as rolled" condition, but in special instances where bright outside surfaces are required, a ground angle can be furnished.

COLD ROLLED STRIP—Cold Rolled Strip is produced by cold rolling hot rolled strip which has been annealed and pickled. The strip is given one or more intermediate anneals, depending upon the gauge at which the strip is to be finished. In the case of soft or dead soft material, the strip is annealed after the final rolling. To obtain skin hard or harder tempers the strip is given a final anneal when somewhat thicker than the gauge required. The desired temper is obtained by rolling to exact gauge from the predetermined thickness at which the strip is annealed.

WELDED MONEL METAL TUBING—This tubing is produced by forming cold rolled strip and acetylene welding without the use of filler rod or flux, and is then sized by drawing through a die.

Expansion—Tubes are tested to withstand a 10% expansion in diameter. This test is made on a 45 degree tapered mandrel.

Pressure Tests—Tubes are tested to withstand air pressure of 250 lbs. per square inch.

COLD DRAWN SEAMLESS NICKEL TUBING—A tubing that is produced from hot rolled tubing which is annealed, pickled, and cold drawn to size, the latter operation requiring several passes through the drawing dies with frequent intermediate annealing. The cold drawn tube is straightened, and tested under a hydraulic pressure which is determined by the size of the tube. Unless otherwise ordered the tubing is delivered in the "as drawn" temper. Annealed tubing will be furnished when specified, and should be ordered for all uses involving coiling, bending or severe expanding.

PHYSICAL PROPERTIES OF Inco Monel Metal and Pure Nickel

INCO MONEL METAL

Color	White
Melting Point	1360° C. (2480° F.)
Specific Gravity	8.87
Weight per cubic inch	0.320 lbs.
Coefficient of Thermal Expansion per ° Centigrade:	
(25° C. — 100° C.)	0.000014 per ° C.
(25° C. — 300° C.)	0.000015 per ° C.
(25° C. — 600° C.)	0.000016 per ° C.
	(256 ohm-mil-foot)
Electrical Resistivity	(42.5 microhm-cm.)
Electrical Conductivity	4% that of Copper
Coefficient of Electrical Resistivity	0.0019 per ° C.
Optical Reflectivity	60% of that of Silver
Heat Conductivity	0.06 C. G. S. units
	($\frac{1}{15}$ of that of Copper)
Specific Heat	(20 — 1300° C.) 0.127 cal. per gram per ° C.
Magnetic Induction at 100 gaussess:	
Cast Metal	500 gaussess
Rolled Metal	1000 — 5000 gaussess
Modulus of Elasticity (Youngs')	25,000,000
Torsional Modulus	9,500,000
Izod Test, 100 ft.-lb. on standard specimen	
Resistance to alternating stress in rotating beam machine — approx:	
100,000,000 alternations at proportional limit.	

INCO PURE NICKEL

Data given are for Malleable Nickel

Density (specific gravity)	8.84 g/cc.
Melting Point	1450° C. (2640° F.)
Weight per cubic inch	0.319 lbs.
Coefficient of Thermal Expansion per ° Centigrade:	
(25° C. — 100° C.)	0.0000130 per ° C.
(25° C. — 300° C.)	0.0000145 per ° C.
(25° C. — 600° C.)	0.0000155 per ° C.
	(64 ohm-mil-foot)
Electrical Resistivity	(10.6 microhm-cm.)
Electrical Conductivity	16% of that of Copper
Coefficient of Electrical Resistivity .....	.0041 per ° C. .0023° per F.
Optical Reflection Coefficient	65%
Thermal Conductivity	14 cgs. units
Specific Heat	(20-1400) .130 cal./g.
Magnetic Induction at 100 gaussess	field strength: 5,000 gaussess.
Modulus of Elasticity (Youngs')	30,000,000 psi.
Torsional Modulus	10,000,000 psi.

TEMPER CHART

INCO MONEL METAL AND PURE NICKEL PRODUCTS

Inco Cold Rolled Monel Metal Sheet

The following tempers apply to Monel Metal Cold Rolled Sheet only. In replacing another metal of a given temper, it is advisable to submit a sample for duplication.

Hardness figures are approximate		
Temper	Hardness	
	Sclero-scope	Rockwell "B" Scale
Cold Rolled		
Dead Soft	16 and under	60 and under
Soft—Skin Hard	17-20	61-73
Quarter Hard	21-24	74-82
x-Half Hard	25-30	83-89
x-Three Quarter Hard	31-35	90-93
x-Hard	36-40	94-97
x-Full Hard	over 40	98 and over

(x—In limited width only.)

Inco Cold Rolled Nickel Sheet

The following tempers apply to Nickel Cold Rolled Sheet only. In replacing another metal of a given temper, it is advisable to submit a sample for duplication.

Hardness figures are approximate		
Temper	Hardness	
	Sclero-scope	Rockwell "B" Scale
Cold Rolled		
Dead Soft	12 and under	55 and under
Soft—Skin Hard	13-16	56-70
Quarter Hard	17-20	71-79
x-Half Hard	21-25	80-85
x-Three Quarter Hard	26-29	86-91
x-Hard	30-35	92-95
x-Full Hard	over 35	over 95

(x—In limited width only.)

Inco Cold Rolled Monel Metal Strip

These tempers apply to Monel Metal only. In replacing another metal of a given temper it is advisable to submit a sample for duplication.

Hardness figures are approximate		
Temper	Hardness	
	Sclero-scope	Rockwell
Cold Rolled		
(a) Dead Soft	16 and under	60 and under
(b) Soft	17-18	61-68
Skin Hard	19-20	69-73
Quarter Hard	21-24	74-82
Half Hard	25-30	83-89
Three Quarter Hard	31-35	90-93
Hard	36-40	94-97
Full Hard		
(Spring)	over 40	98 and over

(a) "Cold Rolled Dead Soft" is suitable for "Deep Drawing" but has a large grain size.

(b) "Cold Rolled Soft" is suitable for "Deep Drawing" but has a fine to medium grain size.

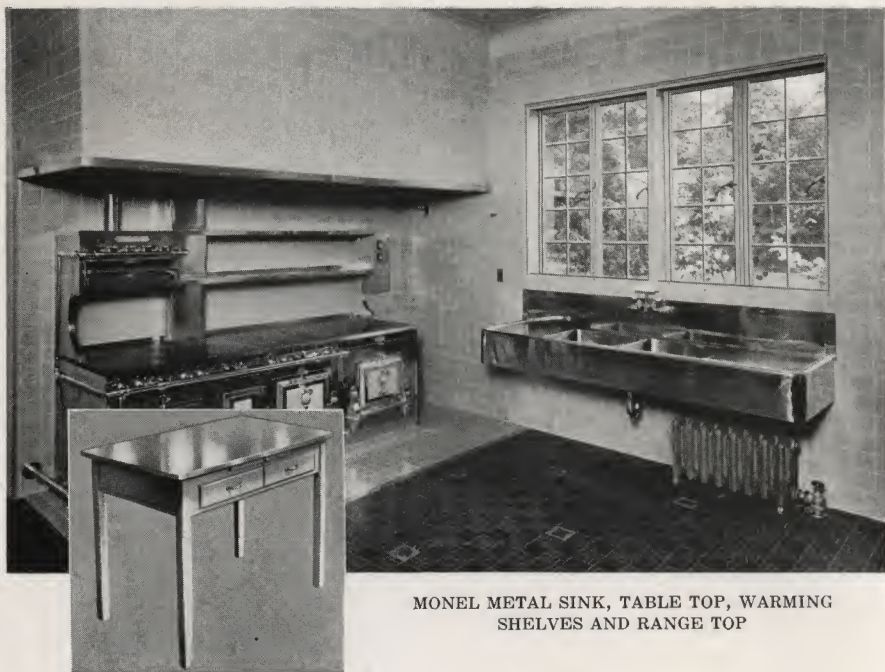
Inco Cold Rolled Nickel Strip

These tempers apply to Cold Rolled Nickel Strip only. In replacing another metal of a given temper it is advisable to submit a sample for duplication.

Hardness figures are approximate		
Temper	Hardness	
	Sclero-scope	Rockwell
Cold Rolled		
(a) Dead Soft	12 and under	55 and under
(b) Soft	13-14	56-64
Skin Hard	15-16	65-70
Quarter Hard	17-20	71-79
Half Hard	21-25	80-85
Three Quarter Hard	26-29	86-91
Hard	30-35	92-95
Full Hard		
(Spring)	over 35	over 95

(a) "Cold Rolled Dead Soft" is suitable for "Deep Drawing" but has a large grain size.

(b) "Cold Rolled Soft" is suitable for "Deep Drawing" but has a fine to medium grain size.



MONEL METAL SINK, TABLE TOP, WARMING
SHELVES AND RANGE TOP

Sales Opportunities for the Sheet Metal Worker

THE sheet metal worker is fortunate in catering to a very wide market and having an ever-increasing variety of products to offer. When he works in Monel Metal he is doubly fortunate, for not only does he have a metal capable of supplanting many non-metallic forms but he also has the backing of a big organization that is continually developing new uses and advertising them to the consumer.

The reprints of advertisements which are available for use as sales promotion copy can be employed to great advantage. These reprints can be obtained by applying to any of our branch offices and they are particularly useful when making attempts to sell Monel Metal for purposes in the home. A customer considering the installation of a new sink would naturally be interested in a sink advertisement.

The handsome sink here illustrated gives some idea of the attractive appearance of a Monel Metal job. This silvery metal is particularly applicable for sinks—it is easy to clean and keep clean—it does not lose its lustrous look and it offers a neutral background that does not impose limitations upon the type of color scheme desired by the housewife.

This illustration of a Monel Metal table top suggests another potential source of profit for the sheet metal worker. Monel Metal meets the needs of the most exacting household for it is both beautiful and useful. Such a table top is a piece of permanent equipment, destined to be more and more appreciated as time passes and its merits are better realized. Incidentally, a well-made Monel Metal table top is invariably a source of pride to its owner and helps to bring in more business in many cases.

Monel Metal sinks, drainboards, cabinet and table tops or shelves give a very distinctive note to the kitchen—a note that is perhaps as much appreciated by visitors as by the owner. While the first sales in most localities demand real effort, every success brightens the prospect for future business. Not only is this true of uses in the kitchen, but it is equally true of many other uses such as: window boxes, flower trays, stair nosings, washtubs, linings and radiator covers, to mention but a few. A complete list of the sheet metal uses of Monel Metal can be obtained from any of our branch offices, together with full information regarding its properties.

Likewise there are many industrial uses of a general nature which offer an extensive market to the sheet metal worker alive to opportunities. Many industrial plants and retail stores have common needs such as containers, tanks, trucks, chutes, utensils (scoops, dippers, scale pans, ladles, pails, trays and funnels), and sieves using either Monel Metal wire cloth or perforated sheet in addition to the equipment that has to be specially made for their particular industry. A list of these uses should be obtained and studied, so that appropriate suggestions can be made when the occasion offers.



MONEL METAL LINED TANK
WITH MONEL METAL TIE RODS,
NUTS AND WASHERS



MONEL METAL BATCH TRANSFER CANS



MONEL METAL FULL FINISHED SHEET

Base Price, Warehouse Shipment.....Cents per lb. f.o.b. our warehouse
Cutting and Quantity Extras, see page 21
Extras over Base Price for Gauge and Size (cents per lb.)

WIDTHS (in inches)	24" to Less than 30" Wide						30" to 36" Wide Incl.						Over 40" to 44" Wide Incl.						Over 44" to 48" Wide Incl.						Over 48" to 50" Wide Incl.	
	60" to 84" incl.	Over 84" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	60" to 84" incl.	Over 84" to 96" incl.
THICKNESS (in inches)	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
	1	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1
	1	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1
	1	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1
.140.....	1	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1	2	2	3	4	5	1
.125.....	2	2	2	2	3	4	5	2	2	2	3	4	5	2	2	2	3	4	5	2	2	2	3	4	5	2
.109, .093.....	2	2	2	2	3	4	5	2	2	2	3	4	5	2	2	2	3	4	5	2	2	2	3	4	5	2
.078, .070, .062.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.056.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.050.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.043.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.037.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.034, .031.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.028.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.025.....	3	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3	3	3	4	5	6	3
.021.....	5	5	5	5	6	7	8	5	5	5	6	7	8	5	5	5	6	7	8	5	5	5	6	7	8	5
.018.....	7	8	8	8	9	10	11	7	7	7	8	9	10	7	7	7	8	9	10	7	7	7	8	9	10	7

Standard Mill Lengths: 60" 72" 84" 96" 108" 120" 132" 144" 156" 168" 172". Standard Mill Widths: 24" 30" 36" 42" 44" 48" 50"
†Widths over 50" and including 60" can be produced, depending on gauge required.



MISCELLANEOUS EXTRAS

FULL FINISHED INCO MONEL METAL AND PURE NICKEL SHEETS

QUANTITY EXTRAS

1. Less than 500 lbs. of a gauge add 2c per lb.
2. More than 500 lbs. and less than 1000 lbs. of a gauge add 1c per lb.

CUTTING EXTRAS

3. For cutting Monel Metal to any size within shearing limits from Huntington or Agent's stock add 5c per lb. to price of sheet used for cutting.
4. For cutting Pure Nickel as above add 7c per lb.
5. Circles - add 25% to the price of squares from which to cut the required diameter.

NO CUTTING EXTRAS IN THE FOLLOWING CASES

6. Mill shipment of squares or rectangles of any special size within limits as indicated, if in lots of 1000 lbs. of a gauge and size - no cutting extras.
7. Sheets ordered for mill delivery with the provision that smaller units or multiples will be acceptable - no cutting extra. This will often expedite delivery.

ADDITIONAL EXTRAS

8. Crating or Boxing for quantities less than 300 lbs. will be invoiced at cost.

EXTRAS FOR SPECIAL FINISHES (ORDER BY NUMBER)

9. POLISHING

No. 3—Satin Grind Finish 7c per square foot.

No. 4—Ground and Buffed Finish 10c per square foot.

Polished Circles special extra upon application.

For Finishing both sides of sheets, prices will be quoted upon application.

(NOTE)—The above charges for mill delivery only apply for finishing one side of sheet only.

(NOTE)—Special Finishes NOT furnished in .018 inch.

See description of Full Finished Sheet on pages 14 and 15.



CUTTING OF STOCK SIZE SHEETS

To better serve the trade we have installed machinery for the shearing of stock sizes of FULL FINISHED MONEL METAL SHEETS. Consistent with economical practice, we will cut stock size sheets to your special requirements at the regular schedule advance of 5c per pound for cutting, as provided for in the price list preceding this page.

Prices will be figured on the extras applicable to the stock size used in cutting.

This practice enables the buyer to purchase sheets cut without waste, as we absorb all scrap incurred in cutting. Careful attention is given to our cutting operations to insure practically the same accuracy as is obtained on a mill delivery.

While some slight delay is occasioned by this cutting operation, we endeavor to keep our forces operating at full time and to keep our schedules clear to provide for rush delivery when required.

These cutting operations involve the use of Full Finished Monel Metal Sheet only. It is not our practice to cut Cold Rolled Sheets, Cold Rolled Polished Sheet, or Full Finished Sheets with a No. 3 Grind, (or other than the standard mill finish), nor do we cut Pure Nickel Sheets unless the customer will take all the scrap.

We are also prepared to apply a No. 3, No. 4 or a No. 5 finish to cut or standard size sheets promptly. This finish is done on a jobbing basis, at prices slightly in excess of our regular mill finishing charges. The finish so applied is as near the mill standard as it is possible to match with our local equipment.

A Circle Cutting Machine is operated for the convenience of customers requiring small quantities of circles, over 6" diameter to 48" diameter, and from .018" to .050" in thickness. Prompt stock shipments within these limits can be made.

Hot Rolled Rods and Cold Drawn Rods can be furnished cut to specific lengths, within the limits of our stock. Extras for such cutting operations are shown on pages 46 and 53.

The threading of Rods suitable for Tie Rods is also done in our warehouse, and prompt shipment affected.

If it is your practice to purchase standard stock size sheets, and then cut to small dimensions, it would be to our mutual advantage if you would note on your order the sizes which are actually used by you.



STOCK LIST

INCO MONEL METAL FULL FINISHED SHEETS

Plain—Not Polished

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	U. S. S. Gauge Equivalent	App. Wt. per Full Sheet	Size of Sheet Inches	Thickness in Inches	U. S. S. Gauge Equivalent	App. Wt. per Full Sheet
24 x 96	.018	26	13.75	36 x 96	.034	21	37.90
24 x 96	.021	25	16.00	36 x 96	.037	20	41.30
24 x 96	.025	24	18.40	36 x 96	.043	19	48.00
24 x 96	.028	23	20.65	36 x 96	.050	18	55.20
24 x 96	.031	22	23.05	36 x 96	.056	17	62.15
24 x 96	.034	21	25.30	36 x 96	.062	16	68.85
24 x 96	.037	20	27.50	36 x 96	.070	15	77.50
24 x 96	.043	19	32.00	36 x 96	.078	14	86.15
24 x 96	.050	18	36.05	36 x 96	.093	13	103.45
24 x 96	.056	17	41.45	36 x 96	.109	12	120.70
24 x 96	.062	16	45.90	36 x 96	.125	11	138.00
24 x 96	.070	15	51.70	36 x 96	.140	10	155.30
24 x 96	.078	14	57.45	36 x 96	.187	7	206.90
24 x 96	.093	13	68.95	36 x 120	.031	22	43.20
24 x 96	.109	12	80.50	36 x 120	.037	20	51.60
24 x 96	.125	11	92.00	36 x 120	.050	18	69.00
24 x 120	.031	22	28.80	36 x 120	.062	16	86.10
24 x 120	.037	20	34.40	36 x 120	.078	14	107.70
30 x 96	.018	26	17.20	36 x 120	.093	13	129.30
30 x 96	.021	25	20.00	36 x 120	.109	12	150.90
30 x 96	.025	24	23.00	36 x 120	.125	11	172.50
30 x 96	.028	23	25.80	48 x 96	.031	22	46.10
30 x 96	.031	22	28.80	48 x 96	.037	20	55.00
30 x 96	.034	21	31.60	48 x 96	.050	18	73.60
30 x 96	.037	20	34.40	48 x 96	.062	16	91.85
30 x 96	.043	19	40.00	48 x 96	.078	14	114.90
30 x 96	.050	18	46.00	48 x 96	.093	13	137.90
30 x 96	.056	17	51.80	48 x 96	.109	12	160.95
30 x 96	.062	16	57.40	48 x 96	.125	11	184.00
30 x 96	.070	15	64.60	48 x 96	.187	7	275.85
30 x 96	.078	14	71.80	48 x 120	.031	22	57.60
30 x 96	.093	13	86.20	48 x 120	.037	20	68.80
30 x 96	.109	12	100.60	48 x 120	.043	19	80.00
30 x 96	.125	11	115.00	48 x 120	.050	18	92.00
30 x 96	.140	10	129.40	48 x 120	.062	16	114.80
36 x 96	.018	26	20.65	48 x 120	.070	15	129.20
36 x 96	.021	25	24.00	48 x 120	.078	14	143.60
36 x 96	.025	24	27.60	48 x 120	.093	13	172.40
36 x 96	.028	23	30.95	48 x 120	.109	12	201.20
36 x 96	.031	22	34.55	48 x 120	.125	11	230.00

Variations from above weights must be expected in practice.

Monel Metal Plates $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " shipped promptly from the mill.

Price Schedule for Full Finished Monel Metal Sheets on page 20.

For cut sizes, see page 22.



MONEL METAL
COOKS' TABLES



SEAMLESS NICKEL KETTLES AND STORAGE TANKS

Perfecting Food Service

MONEL METAL is widely used for food service equipment in this country, Canada and abroad, its use extending through all branches of service including hotels, restaurants, cafeterias, hospitals, schools, dining cars, lunch rooms and wagons, soda fountains, clubs and steamships.

For more than twenty years this metal has been used in the production of food service equipment. There is not an important manufacturer today who is not familiar with the production of Monel Metal food service equipment. Experience has shown the service it will render. Many manufacturers have standardized on Monel Metal for such fixtures as steam tables, urn stands, slicing machines, table tops, dish-washing machines, etc.

Changes in the method of serving and eating have also made the use of Monel Metal more desirable. In cafeterias and lunch rooms where a large portion of the equipment is exposed to the patron's view it is necessary that it should be constructed of material that will stay clean and inviting. Monel Metal with its gleaming, glistening silvery color is ideal. It is easily cleaned with soap and water. Any cleaning compound can be used, however, as alkalis do not affect it. It is a solid metal with no plating or coating. The

more you rub it the brighter it gets. (On request, we will send special engineering survey made by a nationally known company showing the dollars and cents' savings in cleaning labor effected by Monel Metal.)

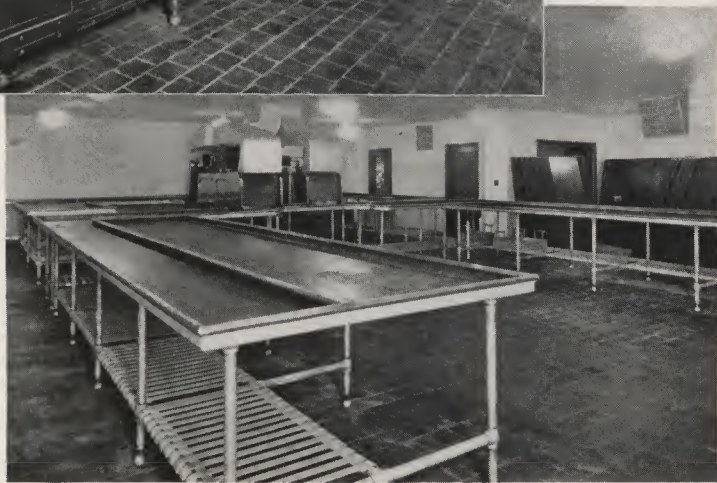
When additions had to be made to a well-known hotel in Cincinnati some three years ago, it was necessary to replace the insulation of an ice cream cabinet having a Monel Metal top—not surprising, since it had been in service thirteen years. However, the Monel Metal top was as good as new. It was put on a new cabinet.

A recent example of the increasing use of Monel Metal in food service equipment is the Palmer House installation, in Chicago, where over 138,000 pounds of Monel Metal were used in the various food service departments. The hotel's manager, Mr. Walter Gregory, stated:

“We want kitchens that can be economically operated and will give the maximum of service with the minimum of service upkeep. Above all, we want kitchens that can be easily kept clean.”

The selection of Monel Metal was inevitable.

Over 250,000 pounds of Monel Metal were used in the new Stevens Hotel, Chicago, and in the Savoy Plaza, New York. Other installations, surpassing these in size, are being projected.



MONEL METAL FOOD SERVICE EQUIPMENT

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



INCO MONEL METAL FULL FINISHED SHEETS

With No. 3 Satin Ground Finish One Side

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	Equivalent to U. S. S. Ga.	App. Wt. per Full Sheet	Size of Sheet Inches	Thickness in Inches	Equivalent to U. S. S. Ga.	App. Wt. per Full Sheet
24 x 96	.021	26	16.00	30 x 96	.078	14	71.80
24 x 96	.025	24	18.40	36 x 96	.021	25	24.00
24 x 96	.031	22	23.05	36 x 96	.025	24	27.60
30 x 96	.021	26	20.00	36 x 96	.031	22	34.55
30 x 96	.025	24	23.00	36 x 96	.037	20	41.30
30 x 96	.031	22	28.80	36 x 96	.043	19	48.00
30 x 96	.037	20	34.40	36 x 96	.050	18	55.20
30 x 96	.043	19	40.00	36 x 96	.062	16	68.85
30 x 96	.050	18	46.00	48 x 96	.050	18	73.60
30 x 96	.062	16	57.00	48 x 96	.078	14	86.15

For cut sizes, see page 22.

INCO COLD ROLLED MONEL METAL SHEETS

Plain—Not Polished

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	Equivalent to U. S. S. Ga.	App. Wt. per Full Sheet	Size of Sheet Inches	Thickness in Inches	Equivalent to U. S. S. Ga.	App. Wt. per Full Sheet
24 x 96	.021	25	16.00	36 x 96	.021	25	24.00
28 x 96	.021	25	18.70	36 x 96	.025	24	27.60
30 x 96	.021	25	20.00	36 x 96	.028	23	30.95
30 x 96	.025	24	23.00	36 x 96	.031	22	34.55
30 x 96	.028	23	25.80	36 x 96	.037	20	41.30
30 x 96	.031	22	28.80	36 x 96	.050	18	55.20
30 x 96	.037	20	34.40	36 x 96	.062	16	68.85

For cut sizes, see page 22.

Price schedule on page 27.

Variations from above weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



PRICE SCHEDULE AND MILL LIMITS

INCO MONEL METAL COLD ROLLED SHEETS

Base Price Cents per lb. f.o.b. our Warehouse

Extras over Base Price for Gauge and Size (cents per lb.)

WIDTH (in inches)	24" to Less than 30" Wide						30" to 36" Wide Incl.						Over 36" to 44" Wide Incl.			
	60" to 84" incl.	over 84" to 96" incl.	over 96" to 120" incl.	over 120" to 132" incl.	over 132" to 144" incl.	over 144" to 166" incl.	60" to 84" incl.	over 84" to 96" incl.	over 96" to 120" incl.	over 120" to 132" incl.	over 132" to 144" incl.	over 144" to 166" incl.	60" to 72" incl.	over 72" to 84" incl.	over 84" to 96" incl.	over 96" to 120" incl.
.250	Base	*	*	*	*	*	Base	*	*	*	*	*	*	*	*	*
.234, .218, .203, .187, .171	Base	Base	*	*	*	*	Base	Base	*	*	*	*	*	*	*	*
.156	1	1	*	*	*	*	1	1	*	*	*	*	*	*	*	*
.140	1	1	2	*	*	*	1	1	2	*	*	*	*	*	*	*
.125	2	2	2	4	5	*	2	2	2	4	5	*	*	*	*	*
.109, .093	2	2	2	5	6	7	2	2	2	5	6	7	7	7	*	*
.078, .070, .062, .056	3	3	3	5	7	8	3	3	3	5	7	8	7	7	8	9
.050, .043, .037	3	3	3	5	7	*	3	3	3	5	7	*	8	9	*	*
.034, .031, .028, .025	4	4	4	*	*	*	4	4	4	*	*	*	*	*	*	*
.021	5	6	6	*	*	*	6	6	7	*	*	*	*	*	*	*
.018	7	8	8	*	*	*	8	8	9	*	*	*	*	*	*	*

Standard Mill Lengths: 60" 72" 84" 96" 108" 120" 132" 144" 156" 166".

Standard Mill Widths: 24" 30" 36" 42" 44".

For sizes carried in stock, see pages 26 and 29.

QUANTITY EXTRAS

1. Less than 500 lbs. of a gauge add 2¢ per lb.
2. 500 lbs. and over, and less than 1000 lbs. of a gauge add 1¢ per lb.

CUTTING EXTRAS

3. For cutting to any size within shearing limits from Huntington stock add 6¢ per lb.—except as below.
4. Circles—Add 25% to the price of squares from which to cut the required diameter.

NO CUTTING EXTRAS IN FOLLOWING CASES

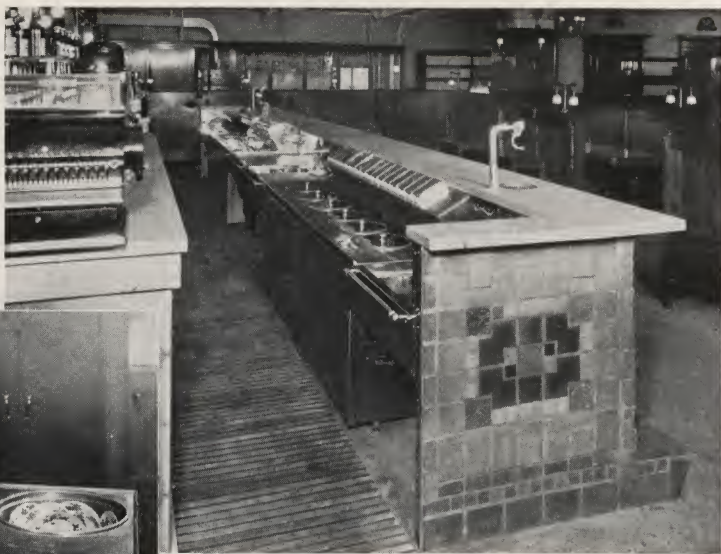
5. Mill shipment of squares or rectangles of any special size within limits as indicated, if in lots of 1000 lbs. of a gauge and size.
6. Sheets ordered for mill delivery with the provision that smaller units or multiples thereof will be acceptable.
7. Crating or boxing for quantities less than 300 lbs. of a size will be invoiced at cost.

EXTRAS FOR SPECIAL FINISH (order by number)

8. Polishing of Mill deliveries—No. 5 Cold Rolled and Buffed Finish 10¢ per square foot. (NOTE) No. 5—Finish is furnished only on sheets of from .021" to .062" inclusive in thickness, and only in tempers softer than quarter hard. This applies for polishing one side of sheet only. Polishing sheets under 12" in width price on application.
9. For polishing both sides of sheets, prices upon application.

EXTRAS FOR SPECIAL TEMPERS (See Temper Chart on page 17)

10. Tempers Quarter Hard or harder add 2¢ per lb. Sheets are furnished in these tempers only up to and including .062" in thickness and they are not perfectly flat.



MONEL METAL SODA FOUNTAIN



MONEL METAL SINK

Soda Fountains That Always Look New

SODA fountain operators agree that soda fountains with Monel Metal tops are great savers of cleaning time, require almost no polishing, are big money savers, and always look bright and attractive. They find the bright, silvery white surface of Monel Metal does more than attract customers. They also find it saves the back-breaking, time-wasting labor of continual polishing and rubbing.

The silvery-white color of Monel Metal is pleasing and permanent, especially in the high finish now available for soda-fountain construction. The ease with which this pleasing appearance is maintained and improved with very little cleaning is one of the fundamental reasons for the popularity of Monel Metal equipment in the soda fountain and kindred businesses.

Monel Metal is absolutely rustless, highly resistant to food acids, and remains untarnished when subjected to high heat. The tensile strength of Monel Metal is equal to that of steel and the hard, dense structure of the metal gives it a surface which is exceedingly difficult to dent or scratch.

A Monel Metal top will retain its attractive silvery appearance through the busiest hours. Being the easiest top to clean it saves a substantial amount in maintenance costs. In addition, it will stand up for years of hard use and abuse. Is it surprising that the leading manufacturers of soda fountains are standardizing on Monel Metal for future production?



INCO COLD ROLLED MONEL METAL SHEETS

No. 5 Polish One Side

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	Equivalent in U. S. S. Ga.	Approximate Weight per Full Sheet
24 x 96	.025	24	18.40
24 x 96	.028	23	20.65
24 x 96	.031	22	23.05
24 x 96	.037	20	27.50
24 x 96	.043	19	32.00
24 x 96	.050	18	36.05
24 x 96	.062	16	45.90
30 x 96	.021	25	20.00
30 x 96	.025	24	23.00
30 x 96	.028	23	25.80
30 x 96	.031	22	28.80
30 x 96	.037	20	34.40
30 x 96	.050	18	46.00
30 x 96	.062	16	57.40
30 x 120	.025	24	28.75
30 x 120	.028	23	32.25
30 x 120	.031	22	36.00
30 x 120	.037	20	43.00
30 x 120	.043	19	50.00
30 x 120	.050	18	56.50
30 x 120	.062	16	71.75
36 x 96	.021	25	24.00
36 x 96	.025	24	27.60
36 x 96	.028	23	30.95
36 x 96	.031	22	34.55
36 x 96	.037	20	41.30
36 x 96	.050	18	55.20
36 x 96	.062	16	68.85
36 x 120	.021	25	30.00
36 x 120	.025	24	34.50
36 x 120	.031	22	43.20
36 x 120	.037	20	51.60
36 x 120	.043	19	60.00
36 x 120	.062	16	86.10

For cut sizes, see page 22.

Price schedule on page 27.

Variations from above weights must be expected in practice.



MONEL METAL LINED DYEING MACHINE

Monel Metal an Old Friend in the Textile and Dyeing Industry

THE merits of Monel Metal have long been known and highly appreciated by textile manufacturers. There is seldom any need to "sell the idea" of Monel Metal to officials of textile or dyeing plants. Monel Metal is specified in the natural course of events for those services for which it is suitable. And for most services it is admirably suitable.

Most of the operations in textile mills and dyehouses are highly technical and involve the consideration of many factors. The variety of shades used today in dyehouses is positively bewildering. Each and every color brings up its own particular problems. It is impossible to list all the dyestuffs and methods of dyeing in which Monel Metal is being or could be used. All that can be done is to indicate the various classes—vat colors, direct colors, acid colors, chrome colors, sulphur colors, developed black—and say that a few reservations may sometimes need to be made.

Sulphur colors, for instance, although unaffected when dyed in Monel Metal equipment, have a severe action on the metal and iron is generally used for this particular service. There is no objection to dyeing occasional batches of sulphur color work in Monel Metal equipment. This also holds true for developed colors, although Monel Metal baskets are extensively used in wood kettles, iron being quite unsuitable to resist nitrous acid, the action of which is exceptionally severe on all metals.

The shade cards issued by E. I. du Pont de Nemours & Co., and also those issued by The National Aniline Dye & Chemical Co., both include information as to the relative effect of iron, copper and Monel Metal on their lines of dyestuffs. The data published by these companies gives comparative results secured with copper, iron and Monel

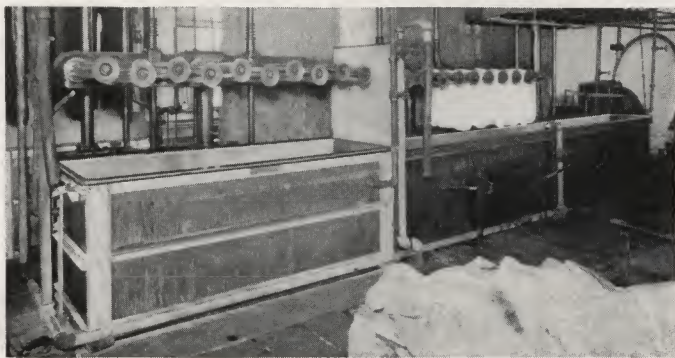
Metal equipment and shows Monel Metal to be almost ideally suited for the full line of colors. Incidentally, the fact that Monel Metal is listed on the shade cards of these and the other leading manufacturers of dyestuffs is highly significant in showing the position of the metal in the industry.

A great deal of the hosiery and knit goods machinery used today is made from Monel Metal. Almost all paddle and rotary types of machines now use Monel Metal for all metal tubs and cylinders, or for lining wooden tubs. Moistening devices and emulsion troughs are a later development.

Owing to the increasing number of shades now used for hosiery, Monel Metal machines largely supplanted the wooden machines formerly used. A certain amount of color was always absorbed by the wood, and much boiling out was usually necessary before another batch could be dyed. Generally it was impossible to dye different shades in one machine, and consequently much extra equipment had to be carried, tying up capital and taking up valuable floor space. Frequently several hours were utilized in boiling out and bleaching the machines. Little imagination is needed to see why Monel Metal has found so great a market in the dyeing field. The boiling out time has been reduced to a matter of minutes; the addition of a little soda ash will usually remove every trace of previous color. In use, Monel Metal equipment takes on a high polish and presents a smooth, hard surface offering no roughness or splinters to catch the delicate fibres of fine grades of silk hosiery.

Nor is the application of Monel Metal limited to dyeing and dyeing operations in the knit goods mill, for manufacturers of knitting machinery find this metal exceptionally suitable for yarn guide staples. In this service it takes on a high polish, eliminates the need for replating, and has the high strength of steel without the tendency to fatigue due to vibration of these parts.

There is a fertile field in the textile and dyeing industries for the sheet metal worker, alive to modern needs resulting from the introduction of new methods. Machinery manufacturers are continually improving their products and devising new and better ways of doing the old task. Always the new supplants the old. This was one of the first fields into which Monel Metal penetrated and is one in which today its position is most firmly secured.



SKEIN DYEING MACHINE WITH MONEL METAL TANKS



MONEL METAL TANK 24 FEET LONG



PRICE SCHEDULE AND MILL LIMITS

INCO MONEL METAL AND PURE NICKEL HOT ROLLED PLATE

Inco Monel Metal Base Price.....Cents per lb. f.o.b. Mill, as of.....19....

Inco Pure Nickel Base Price.....Cents per lb. f.o.b. Mill, as of.....19....

Extras over Base Price for Gauge and Size (cents per lb.)

Widths	Over 18" to 36" Incl.										Over 36" to 48" Incl.						Over 48" to 60" Incl.					
	over 60" to 120" Incl.	over 120" to 156" Incl.	over 156" to 180" Incl.	over 180" to 204" Incl.	over 204" to 240" Incl.	over 240" to 264" Incl.	over 264" to 300" Incl.	over 300" to 324" Incl.	over 324" to 360" Incl.	over 360" to 400" Incl.	over 60" to 120" Incl.	over 120" to 156" Incl.	over 156" to 180" Incl.	over 180" to 204" Incl.	over 204" to 240" Incl.	over 240" to 264" Incl.	over 264" to 300" Incl.	over 300" to 324" Incl.	over 324" to 360" Incl.	over 360" to 400" Incl.	over 400" to 440" Incl.	over 440" to 480" Incl.
1	B	1	2	3	4	*	*	*	*	*	1	2	3	4	*	*	*	*	*	*	*	*
7/8	B	1	2	3	4	5	*	*	*	*	1	2	3	4	*	*	*	*	*	*	*	*
3/4	B	1	2	3	4	5	7	*	*	*	1	2	3	4	5	*	*	*	*	*	*	*
5/8	B	1	2	3	4	5	7	9	*	*	1	2	3	4	5	6	8	*	*	*	*	*
1/2	1	2	3	4	5	6	8	10	*	*	2	3	4	5	6	7	9	*	*	*	*	*
3/8	1	2	3	4	5	6	8	10	*	*	2	3	4	5	6	7	9	11	11	11	11	11
5/16	1	2	3	4	5	6	8	10	*	*	2	3	4	5	6	7	9	11	11	11	11	11
1/4	1	2	3	4	5	6	8	10	*	*	2	3	4	5	6	7	9	11	11	11	11	11



INCO MONEL METAL AND PURE NICKEL HOT ROLLED PLATE—Continued

Widths	Over 60" to 72" Incl.				Over 72" to 84" Incl.				Over 84" to 90" Incl.			
	over 60" to 132" Incl.	over 132" to 144" Incl.	over 144" to 168" Incl.	over 168" to 204" Incl.	over 72" to 108" Incl.	over 108" to 120" Incl.	over 120" to 144" Incl.	over 144" to 168" Incl.	over 168" to 180" Incl.	over 180" to 192" Incl.	over 192" to 204" Incl.	over 204" to 156" Incl.
Lengths (inches)												
1	3	*	*	*	4	*	*	*	*	*	*	*
7/8	3	4	*	*	4	5	*	*	6	*	*	*
3/4	3	4	5	*	4	5	6	*	6	7	*	*
5/8	3	4	5	6	4	5	6	7	6	7	8	*
1/2	4	5	6	7	5	6	7	8	7	8	9	11
3/8	4	5	6	7	5	6	7	8	7	8	9	11
5/16	4	5	6	7	5	6	7	8	7	8	9	*
1/4	4	5	6	7	5	6	7	8	7	8	9	*

STANDARD THICKNESS (in inches)

SPECIAL EXTRAS

CIRCLES

- QUANTITY EXTRAS
1. Less than 100 lbs., of a gauge, add 5c. per lb.
 2. 100 lbs. and over and less than 500 lbs. of a gauge add 3c. per lb.
 3. 500 lbs. and over and less than 1000 lbs. of a gauge add 1c. per lb.

ANNEALING

(Limited to widths of 55" and under.)

5. Add—2c. per lb.

Plates are shipped in the "As Rolled" condition unless "Annealed Plate" is specified. See annealing limit.



NICKEL DAIRY
EQUIPMENT

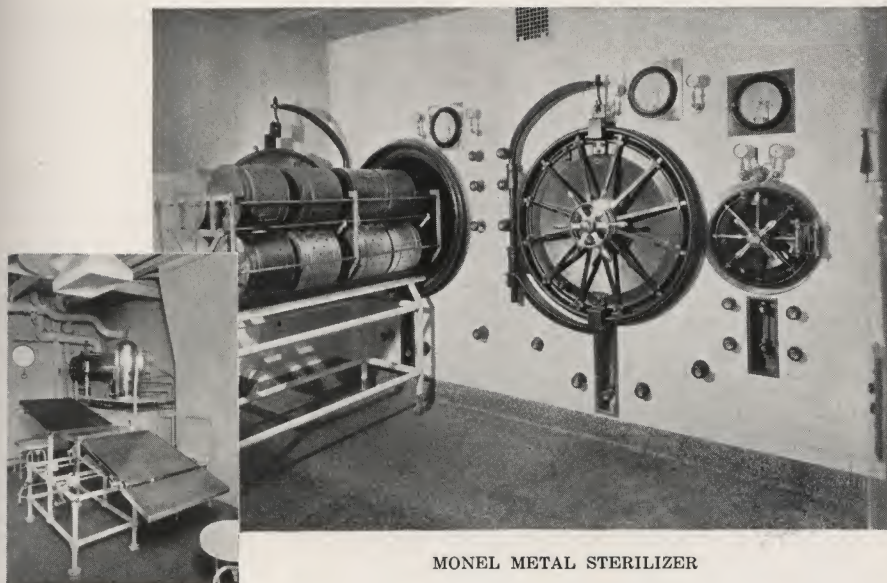
MILK TRUCK WITH NICKEL TANK

Pure Nickel Dairy Equipment

PURE, solid Nickel is now recognized as a leading material for the construction of equipment in the dairy industry. Every year many thousands of pounds of pure solid nickel are built into all types of dairy machinery—pasteurizers, heaters, coolers, storage tanks, filters, truck tanks, positive holders, dump tanks, weigh cans and every kind of metal work required in the modern dairy. This equipment is installed in plants in every part of the U. S. A., in Canada and abroad.

Having been thoroughly tested on a practical service basis for some years the dairyman can now specify nickel equipment with the assurance that he will obtain the highest satisfaction for the money expended. Nickel has distinct advantages. It does not impart a foreign flavor to the milk. It lowers bacteria counts. Being a pure solid metal, it has no coating to wear off. Moreover, it is easily cleaned, and being a strong, tough, rigid and inherently rust proof, it will last for years.

Few materials are suitable for use in the dairy, for the handling of milk is an exacting service. Nickel has been found by practical test to meet every requirement and in all cases pure solid nickel should be specified.



MONEL METAL STERILIZER

MONEL METAL OPERATING TABLE

Cleanliness in the Modern Hospital

THE medical profession were among the first to appreciate the advantages of Monel Metal, so that clinical equipment is probably one of the oldest of standard uses. Monel Metal operating tables that are well over twenty years old are still in use and the satisfaction they have given has led to the widespread adoption of this metal for dressing, instrument, bedside and special tables; stool seats, shelving, nurses' desks and similar equipment.

The economy of Monel Metal pus basins, solution basins, instrument trays, dressing jars, irrigators and sundry other items has been abundantly proved by exhaustive tests over a long period of time. Monel Metal utensils will stand hard use and abuse, and being solid metal throughout they practically last forever.

The preference of experienced hospital executives for Monel Metal equipment is easy to understand for cleanliness means more to them than to anyone else. Monel Metal is inherently clean. It is absolutely proof against rust, verdigris and all but a few hospital solutions. The bright platinum-like surface is kept spic and span so easily that the resulting savings in cleaning time and labor justify its installation on an economic basis alone.

Scouring and polishing have been reduced to a minimum, and there is no danger of destroying the attractive silvery color for there is no plating or coating to wear away.

Of equal importance to the purchaser of hospital equipment is its long life and enduring attractiveness. The high tensile strength of Monel Metal, rigidity and hardness make it highly resistant to denting, scratching and the severest abuse.

The use of Monel Metal by the manufacturer of hospital equipment is in itself a reflection of the quality of the metal. That Monel Metal should be so extensively used in such an exacting service is a significant fact that should commend itself to those seeking a metal that will guarantee performance plus economical upkeep.



INCO PURE NICKEL FULL FINISHED SHEET

Base Price, Warehouse Shipment Cents per lb. f.o.b. our warehouse
 Cutting and Quantity Extras, see page 21
 Extras over Base Price for Gauge and Size (cents per lb.)

WIDTHS (in inches)	24" or Less than 30" Wide						30" to 36" Wide Incl.						Over 36" to 40" Wide Incl.						Over 40" to 44" Wide Incl.						Over 44" to 48" Wide Incl.						Over 48" to 50" Wide Incl.
	Over 84" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.	60" to 96" incl.	Over 96" to 120" incl.	Over 120" to 132" incl.	Over 132" to 144" incl.	Over 144" to 156" incl.	Over 156" to 172" incl.							
LENGTHS (in inches)	THICKNESS (in inches)	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base						
	.250, .234, .218, .203...	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.187, .171...	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.156...	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.140...	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.125...	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.109, .093...	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	.078, .070, .062...	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
	.056...	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
	.050...	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
	.043...	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
	.037...	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							
	.034, .031...	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							
	.028...	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							
	.025...	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							
	.021...	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6							
.018...	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8								

Standard Mill Lengths: 60" 72" 84" 96" 108" 120" 132" 144" 156" 168" 172". Standard Mill Widths: 24" 30" 36" 42" 48" 50".
 Quantity and Cutting extras are listed on pages 21 and 22. *Widths over 50" and including 60" can be produced, depending on gauge required.



STOCK LIST

PURE NICKEL FULL FINISHED SHEETS

Plain—Not Polished

Standard Sizes for Prompt Mill Shipment

Size of Sheet Inches	Thickness in Inches	Equivalent to U.S.S. Ga.	App. Wt. per Full Sheet	Size of Sheet Inches	Thickness in Inches	Equivalent to U.S.S. Ga.	App. Wt. per Full Sheet
24 x 96	.018	26	13.75	36 x 96	.025	24	27.60
24 x 96	.021	25	16.00	36 x 96	.028	23	30.95
24 x 96	.025	24	18.40	36 x 96	.031	22	34.55
24 x 96	.028	23	20.65	36 x 96	.034	21	37.90
24 x 96	.031	22	23.05	36 x 96	.037	20	41.30
24 x 96	.034	21	25.30	36 x 96	.043	19	48.00
24 x 96	.037	20	27.50	36 x 96	.050	18	55.20
24 x 96	.043	19	32.00	36 x 96	.056	17	62.15
24 x 96	.050	18	36.05	36 x 96	.062	16	68.85
24 x 96	.062	16	45.90	36 x 96	.070	15	77.50
24 x 96	.078	14	57.45	36 x 96	.078	14	86.15
24 x 96	.093	13	68.95	36 x 96	.093	13	103.15
24 x 96	.109	12	80.50	36 x 96	.109	12	120.70
24 x 96	.125	11	92.00	36 x 96	.125	11	138.00
30 x 96	.018	26	17.20	36 x 96	.187	7	206.90
30 x 96	.021	25	20.00	36 x 120	.021	25	30.00
30 x 96	.025	24	23.00	36 x 120	.025	24	34.50
30 x 96	.028	23	25.80	36 x 120	.031	22	43.20
30 x 96	.031	22	28.80	36 x 120	.034	21	47.40
30 x 96	.034	21	31.60	36 x 120	.037	20	51.60
30 x 96	.037	20	34.40	36 x 120	.050	18	69.00
30 x 96	.043	19	40.00	36 x 120	.056	17	77.70
30 x 96	.050	18	46.00	36 x 120	.062	16	86.10
30 x 96	.062	16	57.40	36 x 120	.070	15	96.90
30 x 96	.070	15	64.60	36 x 120	.078	14	107.70
30 x 96	.078	14	71.80	36 x 120	.093	13	129.30
30 x 96	.093	13	86.20	36 x 120	.109	12	150.90
30 x 96	.109	12	100.60	36 x 120	.125	11	172.50
30 x 96	.125	11	115.00	48 x 120	.050	18	92.00
36 x 96	.018	26	20.65	48 x 120	.062	16	114.80
36 x 96	.021	25	24.00	48 x 120	.078	14	143.60

See page 36 for prices and mill limits.

Other dimensions either cut to order or rolled to specification at the mill.

No. 3 Satin Ground Finish on page 21.

Heavy Nickel Plates in thicknesses of $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ " and 1" rolled to order at the mill. See pages 32 and 33 for Price Schedule.

Weights are theoretical and variations must be expected.



INCO PURE NICKEL FULL FINISHED SHEETS

No. 3 Satin Ground Finish

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	Equivalent in U. S. S. Ga.	Approximate Weight per Full Sheet
24 x 96	.031	22	23.05
30 x 96	.025	24	23.00
36 x 96	.021	25	24.00
36 x 96	.025	24	27.60
36 x 96	.028	23	30.95
36 x 96	.031	22	34.55
36 x 96	.034	21	37.90
36 x 96	.037	20	41.30
36 x 96	.050	18	55.20
36 x 96	.062	16	68.85

See page 36 for price list and mill limits.

Any of the Standard sizes listed on page 37 can be ground promptly.

Special dimensions to order from the mill.

INCO COLD ROLLED PURE NICKEL SHEETS

Plain—Not Polished

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Thickness in Inches	Equivalent in U. S. S. Ga.	Approximate Weight per Full Sheet
36 x 96	.021	25	24.00
36 x 96	.025	24	27.60
36 x 96	.028	23	30.95
36 x 96	.031	22	34.55
36 x 96	.034	21	37.90
36 x 96	.037	20	41.30
36 x 96	.043	19	48.00
36 x 96	.050	18	55.20
36 x 96	.056	17	62.15
36 x 96	.062	16	68.85

See page 43 for price list and mill limits.

Smaller or larger sheets and heavier gauges in standard sizes for prompt mill shipment.

Odd size sheets cut to your requirements from mill stock.

The above sheets with Polished finish promptly from the mill.

Variations from above weights must be expected in practice.



INCO HOT ROLLED ANNEALED MONEL METAL ANGLES

Immediate Shipment from Our Warehouse Stocks
Standard Angles Lengths about 8 to 16 Feet

Size of Angles	Weight per Lin. Foot	Size of Angles	Weight per Lin. Foot
1 1/4" x 1 1/4" x 1/8"	1.211	2" x 2" x 1/8"	1.938
1 1/4" x 1 1/4" x 3/16"	1.807	2" x 2" x 3/16"	2.907
1 1/4" x 1 1/4" x 1/4"	2.422	2" x 2" x 1/4"	3.876
1 1/2" x 1 1/2" x 1/8"	1.453	2 1/2" x 2 1/2" x 1/8"	2.422
1 1/2" x 1 1/2" x 3/16"	2.180	2 1/2" x 2 1/2" x 3/16"	3.633
1 1/2" x 1 1/2" x 1/4"	2.906	2 1/2" x 2 1/2" x 1/4"	4.845
		3" x 3" x 1/4"	5.814

Other sizes can be made to order promptly.
Price list on page 52.

INCO COLD ROLLED MONEL METAL ANGLES
SQUARE ROOT

Base Price.....per lb. f. o. b. our Warehouse
Schedule showing extras per lb. for size and quantity over Base Price
Mill Lengths—5 to 16 feet

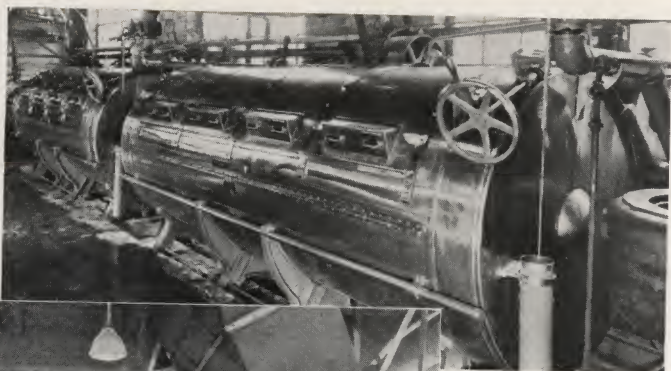
Quantity Thickness	2,000 lbs. or over		500 lbs. or over		100 lbs. or over		Under 100 lbs.		Theor. Weight per foot	
	.109	.062	.109	.062	.109	.062	.109	.062	.109	.062
1/2 x 1/2	5	8	6	10	8	12	12	16	.419	.238
3/4 x 3/4	3	5	5	7	7	10	11	14	.628	.357
1 x 1	2	4	4	5	6	7	10	12	.837	.476
1 1/4 x 1 1/4	2	3	4	5	6	7	10	12	1.046	.595
1 1/2 x 1 1/2	2	2	4	5	6	7	10	12	1.256	.714
1 3/4 x 1 3/4	1	1	3	5	5	7	9	12	1.465	.833
2 x 2	1	1	3	5	5	7	9	12	1.674	.952
2 1/4 x 2 1/4	1	1	3	5	5	7	9	12	1.884	1.07
2 1/2 x 2 1/2	2	2	4	4	7	8	12	14	2.093	1.19
2 3/4 x 2 3/4	2	2	4	4	7	8	12	14	2.302	1.309
3 x 3	2	2	4	4	7	8	12	14	2.511	1.428

Cutting—to definite lengths—24" and over 5¢ per pound.
Cutting under 24" Special Price on application.
Boxing or packing where required under 100 lbs. at cost.
Special sizes not listed above can be furnished bent on a brake with rounded corners.
Prices will be given upon application.

INCO COLD ROLLED MONEL METAL STRIP ANGLES

Size of Angles	Weight per Lin. Foot	Size of Angles	Weight per Lin. Foot
1/2" x 1/2" x .062"	.242	1/2" x 1/2" x .109"	.420
3/4" x 3/4" x .062"	.363	3/4" x 3/4" x .109"	.640
1" x 1" x .062"	.484	1" x 1" x .109"	.840
1 1/4" x 1 1/4" x .062"	.605	1 1/4" x 1 1/4" x .109"	1.060
1 1/2" x 1 1/2" x .062"	.726	1 1/2" x 1 1/2" x .109"	1.260
1 3/4" x 1 3/4" x .062"	.847	2" x 2" x .109"	1.680
2" x 2" x .062"	.968	3" x 3" x .109"	2.510

Other gauges and special sizes made to order. See price schedule above.
Variations from above weights must be expected in practice.



MONEL METAL
LAUNDRY MACHINES



MONEL METAL LAUNDRY CHUTES

Washing the World's Linen

THE steam laundry joke has long been a hardy annual both on the stage and in the funny papers. Fortunately, it is only a joke. There is no market for machines which pull clothes apart, rip buttons off and remove dirt and stains by removing the fabric also.

The modern laundry is a most efficient institution, and its high level of development owes much to the fact that machinery manufacturers have found in Monel Metal the vital properties required in the exacting business of washing the world's linen.

The moist corrosive conditions met in the laundry cannot be overcome by materials that are not absolutely rust-proof and resistant to the action of chemical solutions. Rigid and strong construction is necessary with smooth stain-free surfaces. Wood, previously in general use, will not meet the conditions in the modern laundry where a non-porous material is necessary. Cleanliness is essential. Metals that will spot and stain fabrics cannot be employed.

The avoidance of spots and stains in the modern laundry is of prime importance. Under the moist conditions prevalent in the laundry, verdigris does not form on Monel Metal. There are no porous cracks or crevices in which dirt and soap in combination may lodge. The surface of Monel Metal is smooth and free from splinters and slivers, so harmful to delicate fabrics. Monel Metal is absolutely rust-proof. It will not produce oxides and salts, the chief source of stained and spotted clothes.

Monel Metal is extremely resistant to reaction with alkaline solutions; soaps, scours and commercial bleaches in the strength used in contact with the fabric have no effect

on the metal. Under modern laundry conditions where soft water is used, wood washers do not stand up as well as formerly. When hard water was used a protective coating was formed on the wood.

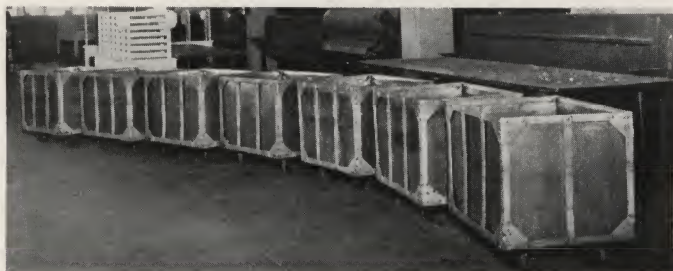
Monel Metal machines are easily cleaned. They make possible a considerable reduction in the amount of labor necessary to keep washers in a clean and sanitary condition. Monel Metal being as strong as steel can be rigidly constructed without danger of bolts and nuts working loose (due to expansion and contraction), a common fault with wooden equipment. To emphasize the cleanliness of Monel Metal washers, one laundry has adopted a single demonstration when showing visitors through the plant. A washer is stopped and opened, exposing the load in the process of washing. The inner surface of the cylinder is rubbed with a clean pocket handkerchief which then shows no trace of discoloration.

For a given capacity Monel Metal washers occupy less floor space than wood washers and turn out more and better work than a larger number of other machines. This advantage is immediately evident in the new power-dumping washers designed to work with the hopper system and conveyor belt.

Apart from the construction of washing machines, Monel Metal is used extensively for the manufacture of various laundry accessories. The same reasons which make the metal the most suitable for washers make its use preferable at every point of contact. It would be useless to avoid spots and stains in the washer if damp clothes are allowed to come in contact with rusty trucks, chutes or dryers. The modern laundry owner demands Monel Metal for accessory equipment, with the result that several companies are manufacturing standard lines of various types of hand trucks.

Monel Metal chutes also have been adopted by laundries for conveying clothes from one department to another. The smooth surface of Monel Metal is ideal for this purpose, preventing tearing and staining of fabrics. Many laundries are installing starch cookers, coolers, mixers, and starching tubs, constructed entirely of Monel Metal. They are using it for shirt dampeners, parts of ironing machines and dryers with which the fabrics actually come in contact. The prevention of stains is so important that Monel Metal is widely used for identification tags and markers, table and table tops.

Monel Metal is adaptable to every type of laundry equipment and the varied commercial forms in which it is available make it possible to fabricate any article of equipment used in the laundry. Upward of 7,000,000 pounds of Monel Metal are in use in commercial and institutional laundries both in this country and abroad. Thousands of Monel Metal washers are in service in commercial laundries, rendering a service entirely free from the danger of soiling and damaging fabrics. All the leading laundries in the United States are equipped either entirely or in part with Monel Metal washers.



MONEL METAL LAUNDRY TRUCKS



Price Schedule

INCO COLD ROLLED MONEL METAL AND PURE NICKEL STRIP

Monel Metal Base Price.....c per lb. f.o.b. our Warehouse

Nickel Base Price.....c per lb. f.o.b. our Warehouse

Extras in cents per lb. over Base Price for size and gauge

This table applies to coiled strip which is slit to width

Gauge	1½ inch to Less Than 3 inches Wide	3 inches to 12 inches Wide Inc.	Over 12 inches to 16 inches Wide, Inc.	Over 16 inches to 18 inches Wide, Inc.
.125	2	Base	1	3
.109, .093	3	1	2	4
.078, .056	4	2	3	5
.050, .037	5	3	4	6
.034, .025	6	4	5	*
.021	7	5	6	*
.018	8	7	7	*
.015	10	9	*	*

*Outside of Mill Limits

EXTRAS

QUANTITY EXTRAS

1. Less than 100 lbs. of a gauge add 3c. per lb.
2. 100 lbs. and over, and less than 500 lbs. of a gauge add 2c. per lb.
3. 500 lbs. and over, and less than 1000 lbs. of a gauge add 1c. per lb.

STRAIGHTENING AND CUTTING EXTRAS

4. Extras for straightening and cutting to lengths from 2 ft. to 12 ft. in widths from 1½" to 12" inclusive add 3c. per lb.
5. Extras for straightening and cutting to sizes outside of above limits price on application.

EXTRA FOR SPECIAL TEMPER (See Temper Chart)

6. Extra for Spring Temper 1c. per lb.
7. No extras for other tempers.

EXTRA FOR HEAVY GAUGES

8. Thickness greater than .125" up to and including .187" can be furnished in straight lengths within limits outlined in No. 4 under "Straightening and Cutting Extras"—add 6c. per lb. to base.

ADDITIONAL EXTRAS

9. Boxing and wrapping for quantities of less than 100 lbs. of a size will be invoiced at cost.

EXTRAS FOR SPECIAL FINISH

10. Polishing (Straight Lengths Only)

No. 5—Cold Rolled and Buffed Finish, within Straightening and cutting limits quoted on receipt of inquiry.

EXTRAS FOR ROUND EDGE

11. The following sizes of cold rolled strip can be furnished with round edges at the extra listed.

Width	Gauge	Extras
1½" to less than 3"	.040 to .078 inc.	2c. per lb.
1½" to less than 3"	over .078 to .187 inc.	1½c. per lb.
3" to 7" incl.	.040 to .078 inc.	1c. per lb.
3" to 7" incl.	over .078 to .187 inc.	½c. per lb.

Sizes from $\frac{5}{32}$ " to 3" wide and in thickness down to .003"; also, $3\frac{1}{16}$ " to 8" and in thickness as low as .008" can be rolled special at the mill on short notice. Prices will be furnished upon application.



PRICE SCHEDULE AND MILL LIMITS

INCO PURE NICKEL COLD ROLLED SHEET

Base Price.....Cents per lb. f.o.b. our Warehouse

Extras over Base Price for Gauge and Size (cents per lb.)

Standard Thickness (in inches)	WIDTH (in inches)		24" to Less than 30" Wide						30" to 36" Wide Incl.						Over 36" to 44" Wide Incl.			
	LENGTHS (in inches)		60" to 84" incl.	over 84" 96" incl.	over 96" 120" incl.	over 120" 132" incl.	over 132" 144" incl.	over 144" 166" incl.	60" to 84" incl.	over 84" 96" incl.	over 96" 120" incl.	over 120" 132" incl.	over 132" 144" incl.	over 144" 166" incl.	60" to 72" incl.	over 72" 84" incl.	over 84" 96" incl.	over 96" 120" incl.
.250.....	Base		*	*	*	*	*	*	Base	*	*	*	*	*	*	*	*	*
.234, .218, .203,	Base		Base	*	*	*	*	*	Base	Base	*	*	*	*	*	*	*	*
.187, .171.....	Base		1	*	*	*	*	*	1	1	*	*	*	*	*	*	*	*
.156.....	1		1	2	*	*	*	*	1	1	2	*	*	*	*	*	*	*
.140.....	2		2	2	4	5	*	*	2	2	2	4	5	*	*	*	*	*
.125.....	2		2	2	5	6	7	*	2	2	2	5	6	7	7	7	*	*
.109, .093.....	3		3	3	3	5	7	8	3	3	3	5	7	8	7	7	8	9
.078, .070, .062,	3		3	3	3	5	7	*	3	3	3	5	7	*	8	9	*	*
.056.....	5		5	5	5	*	*	*	5	5	5	*	*	*	*	*	*	*
.050, .043, .037..	6		7	7	*	*	*	*	7	7	8	*	*	*	*	*	*	*
.034, .031, .028,	8		9	9	*	*	*	*	9	9	10	*	*	*	*	*	*	*
.025.....																		
.021.....																		
.018.....																		

Standard Mill Lengths: 60" 72" 84" 96" 108" 120" 132" 144" 156" 166".

Standard Mill Widths: 24" 30" 36" 42" 44".

For sizes carried in stock, see page 38.

QUANTITY EXTRAS

1. Less than 500 lbs. of a gauge add 2¢ per lb.
2. 500 lbs. and over, and less than 1000 lbs. of a gauge add 1¢ per lb.

CUTTING EXTRAS

3. For cutting to any size within shearing limits from Huntington stock add 8¢ per lb.—except as below.
4. Circles—Add 25% to price of squares from which circles will be cut.

NO CUTTING EXTRAS IN FOLLOWING CASES

5. Mill shipment of any special size within limits indicated, if in lots of 1000 lbs. of a gauge and size.
6. Sheets ordered for mill delivery with the provision that smaller units or multiples thereof will be acceptable.
7. Crating or boxing for quantities less than 300 lbs. of a size will be invoiced at cost.

EXTRAS FOR SPECIAL FINISH (Order by number)

8. Polishing of Mill deliveries—No. 5 Cold Rolled and Buffed Finish 10¢ per square foot. (NOTE) No. 5—Finish is furnished only on sheets of from .021" to .062" inclusive in thickness and only in tempers softer than quarter hard. This applies for polishing one side of sheet only. Polishing sheets under 12" in width price on application.
9. For polishing both sides of sheets, prices upon application.

EXTRAS FOR SPECIAL TEMPERS (See Temper Chart on page 17)

10. Tempers Quarter Hard or harder add 2¢ per lb. Sheets are furnished in these tempers only up to and including .062" in thickness and they are not perfectly flat.



ORNAMENTAL DOORS MADE OF MONEL METAL

Ornamental Metal Work Fabricated in Monel Metal

THERE are many architectural uses for Monel Metal in the ornamental metal field. Gates and grilles made from Monel Metal give beauty and dignity to many residences. Monel Metal is used for these and similar purposes because it offers permanent beauty that can be readily maintained.

Among the many uses for Monel Metal in this particular field might be mentioned: hinges, stair railings, balustrades, roofing, kick plates, door handles and knobs, shop fronts and ornamental trim. Many models, objets d'art, lamps and the like are also made from Monel Metal.

A singular example of the lasting qualities of Monel Metal is to be found at the Pennsylvania Terminal, New York City, the roof of which is made from Monel Metal. Placed there when the station was built, it is as sound today as when it was finished.



MONEL METAL FLOWER POT TRAY

A sample of this roof was examined some eighteen years after it was erected in order to determine the loss in weight. Despite the corroding influences at work in the atmosphere of New York, the sample had only lost .001 of an inch less in thickness than the gauge of the metal specified for the job and this can be accounted for by the minus tolerance on the metal as originally installed.

Such a result speaks volumes for the suitability of Monel Metal for services demanding durability and lasting qualities. Other metals cannot equal it for endurance. Immune to rust, resistant to corrosion, strong as steel, easy to clean, Monel Metal offers the architect a permanently beautiful metal for many different types of service.



ART LAMP MADE OF MONEL METAL



INCO HOT ROLLED MONEL METAL AND PURE NICKEL RODS

Monel Base Price.....Cents per pound, f.o.b. our Warehouse

Nickel Base Price.....Cents per pound, f.o.b. our Warehouse

Schedule Showing Extras Per Pound for Size and Quantity Over Base Price ROUNDS, HEXAGONS, SQUARES, FLATS

SIZE	10000 lbs. or over	6000 lbs. or over	2000 lbs. or over	500 lbs. or over	100 lbs. or over	Less than 100 lbs.
Rounds in Straight Lengths						
$\frac{1}{16}$ " and $\frac{1}{8}$ " to $\frac{3}{8}$ " dia. by $\frac{1}{8}$ ths	¢ 5.0	¢ 5.5	¢ 6.0	¢ 6.5	¢ 7.0	¢ 7.5
$\frac{7}{8}$ " to 1" dia. by $\frac{1}{8}$ ths	1.0	1.5	2.0	2.5	3.0	3.5
1 $\frac{1}{8}$ " to 2 $\frac{1}{8}$ " dia. by $\frac{1}{8}$ ths	0.5	1.0	1.5	2.0	2.5	3.0
2 $\frac{1}{8}$ " to 4 $\frac{1}{4}$ " dia. by $\frac{1}{8}$ ths	Base	0.5	1.0	1.5	2.0	2.5
Rounds Hammered and Rough Turned						
4 $\frac{1}{2}$ " to 6" dia. by $\frac{1}{4}$ ths	2.0	2.5	3.0	3.5	4.0	4.5
Over 6" dia.	1.0	1.5	2.0	2.5	3.0	3.5
Hexagons in Straight Lengths						
$\frac{1}{4}$ " to $\frac{1}{2}$ " by $\frac{1}{8}$ nds	7.0	7.5	8.0	8.5	9.0	9.5
$\frac{3}{8}$ " to $\frac{1}{2}$ " by $\frac{1}{8}$ ths	4.0	4.5	5.0	5.5	6.0	6.5
$\frac{3}{4}$ " to 1" by $\frac{1}{8}$ ths	2.0	2.5	3.0	3.5	4.0	4.5
1 $\frac{1}{8}$ " to 2 $\frac{1}{8}$ " by $\frac{1}{8}$ ths	1.5	2.0	2.5	3.0	3.5	4.0
Hammered Hexagons above 2 $\frac{1}{8}$"—price on application						
Squares in Straight Lengths						
$\frac{1}{8}$ "	7.0	7.5	8.0	8.5	9.0	9.5
$\frac{3}{8}$ " to $\frac{1}{2}$ " by $\frac{1}{8}$ ths	4.0	4.5	5.0	5.5	6.0	6.5
$\frac{3}{4}$ " to 1" by $\frac{1}{8}$ ths	2.0	2.5	3.0	3.5	4.0	4.5
1 $\frac{1}{8}$ " to 2" by $\frac{1}{8}$ ths	1.5	2.0	2.5	3.0	3.5	4.0
2 $\frac{1}{8}$ " to 4" by $\frac{1}{8}$ ths	1.0	1.5	2.0	2.5	3.0	3.5
Hammered Squares above 4" —price on application						
Flats in Straight Lengths						
$\frac{1}{8}$ " x $\frac{1}{2}$ " to 8" wide	4.0	4.5	5.0	5.5	6.0	6.5
$\frac{1}{4}$ " x $\frac{1}{2}$ " to 10" wide	3.5	4.0	4.5	5.0	5.5	6.0
$\frac{1}{4}$ " x $\frac{1}{2}$ " to 10" wide	3.0	3.5	4.0	4.5	5.0	5.5
$\frac{1}{2}$ " x $\frac{1}{2}$ " to 10" wide	2.5	3.0	3.5	4.0	4.5	5.0
$\frac{3}{8}$ " x $\frac{1}{2}$ " to 10" wide	2.0	2.5	3.0	3.5	4.0	4.5
$\frac{1}{4}$ " x $\frac{1}{2}$ " to 10" wide	1.5	2.0	2.5	3.0	3.5	4.0
$\frac{1}{2}$ " x $\frac{1}{2}$ " to 10" wide	1.0	1.5	2.0	2.5	3.0	3.5
$\frac{1}{4}$ " x $\frac{3}{8}$ " to 10" wide	0.5	1.0	1.5	2.0	2.5	3.0
$\frac{3}{8}$ " to 1" x up to 10" wide	Base	0.5	1.0	1.5	2.0	2.5
1 $\frac{1}{8}$ " to 2" x up to 8" wide	Base	0.5	1.0	1.5	2.0	2.5
Widths under $\frac{1}{8}$ " are not edged.						
Widths from over 10" to 18" prices and specifications on application.						

SPECIAL EXTRAS

CUTTING EXTRAS

- For cutting to specified length 12" and over add 2c. per pound to schedule.
- Lengths under 12"—prices on application.

NO CUTTING EXTRA IN FOLLOWING CASES

- Lengths from 12" to less than 72" for mill delivery.
- Specified lengths ordered for mill delivery with the provision that lengths under 72" or multiples thereof will be acceptable.

See pages 47, 50, 51 for all sizes carried in stock.

EXTRAS FOR PICKLING

- For pickling to remove black oxide surface add 2c per pound.

EXTRAS FOR SPECIAL SIZES AND SHAPES

- Prices on application.
- For special lengths over 18 ft.—price on application.

EXTRA FOR ANNEALING

- Add 2c. per pound.



Stock List

INCO HOT ROLLED MONEL METAL RODS

Rounds

Squares

Hexagons

Immediate Shipment from Our Warehouse Stocks

Lengths from 8 to 16 Feet

Diameter of Rod Inches	Decimal Equiv. in Inches	Weight per Lineal Foot Indicate Stock Sizes			Diameter of Rod Inches	Decimal Equiv. in Inches	Weight per Lineal Foot Indicate Stock Sizes		
		Round	Hexagon	Square			Round	Hexagon	Square
$\frac{1}{4}$	.250	.190	....	....	$1\frac{1}{4}$	1.750	9.321	10.276	.....
$\frac{5}{16}$	.312	.297	....	.379	$1\frac{3}{8}$	1.812	10.000	.....	.....
$\frac{3}{8}$	.375	.428	.472	.545	$1\frac{7}{8}$	1.875	10.702	11.799	.....
$\frac{7}{16}$	.437	.583	.643	.742	$1\frac{1}{2}$	1.937	11.428	.....	.....
$\frac{1}{2}$	.500	.761	.839	.969	2	2.000	12.178	13.426	.....
$\frac{9}{16}$	.562	.963	1.062	1.226	$2\frac{1}{8}$	2.125	13.747	.....	.....
$\frac{5}{8}$	.625	1.189	1.311	1.514	$2\frac{1}{4}$	2.250	15.411	.....	.....
$\frac{11}{16}$	.687	1.439	1.586	.....	$2\frac{3}{8}$	2.375	17.171	.....	.....
$\frac{3}{4}$	.750	1.712	1.887	2.180	$2\frac{1}{2}$	2.500	19.027	.....	.....
$\frac{13}{16}$	.812	2.010	2.216	.....	$2\frac{5}{8}$	2.625	20.977	.....	.....
$\frac{7}{8}$	.875	2.331	2.570	2.968	$2\frac{3}{4}$	2.750	23.022	.....	.....
$\frac{15}{16}$	.937	2.766	2.940	.....	$2\frac{7}{8}$	2.875	25.162	.....	.....
1	1.000	3.044	3.356	3.876	3	3.000	27.309	.....	.....
$1\frac{1}{16}$	1.063	3.436	3.788	.....	$3\frac{1}{8}$	3.125	29.682	.....	.....
$1\frac{1}{8}$	1.125	3.853	4.248	4.906	$3\frac{1}{4}$	3.250	32.155	.....	.....
$1\frac{3}{16}$	1.187	4.293	4.733	.....	$3\frac{3}{8}$	3.375	34.673	.....	.....
$1\frac{1}{4}$	1.250	4.756	5.243	6.056	$3\frac{1}{2}$	3.500	37.291	.....	.....
$1\frac{5}{16}$	1.312	5.244	5.782	.....	$3\frac{5}{8}$	3.625	40.045	.....	.....
$1\frac{3}{8}$	1.375	5.756	6.346	7.328	$3\frac{3}{4}$	3.750	42.810	.....	.....
$1\frac{7}{16}$	1.437	6.291	6.934	.....	4	4.000	48.706	.....	.....
$1\frac{1}{2}$	1.500	6.849	7.551	8.721	$4\frac{1}{8}$	4.125	51.845	.....	.....
$1\frac{9}{16}$	1.562	7.432	8.194	.....	$4\frac{1}{4}$	4.250	54.985	.....	.....
$1\frac{5}{8}$	1.625	8.039	8.863	10.235	$4\frac{1}{2}$	4.500	61.644	.....	.....
$1\frac{11}{16}$	1.687	8.669	9.558	.....	5	5.000	76.105	.....	.....

Round Rods up to 10" diameter—Hexagon Rods up to 4" across Flats and Square Rods up to $3\frac{1}{8}$ " diameter also available for immediate shipment from the mill. Larger sizes can be forged promptly if the weight of the piece desired is within the mill limits.

Variations from above weights must be expected in practice.

Half oval, half round and triangular made special for prompt mill shipment. Prices upon application.



TOW BOAT WITH MONEL METAL SHAFT

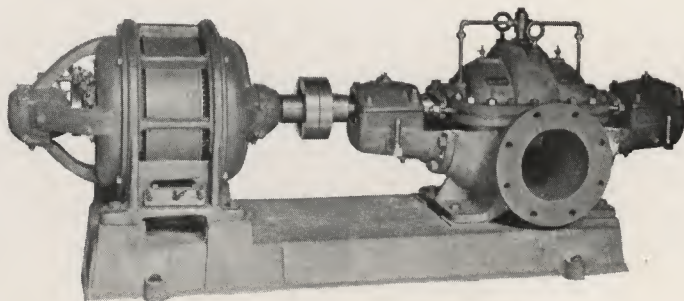
Power and Motor Boat

BECAUSE of the strength of Monel Metal at high temperatures and because it withstands corrosion and the erosive action of superheated steam, it is used extensively in power plant equipment.

The coefficient of expansion of Monel Metal is sufficiently close to that of steel to permit its use in conjunction with steel for parts controlling and directly subjected to the erosive action of the steam flow at superheat. Valve seats, rods and discs, expansion joints, governor parts, pump rods and liners, shafts, springs, turbine blading and other parts of power plant equipment made from Monel Metal are in use against superheated steam.

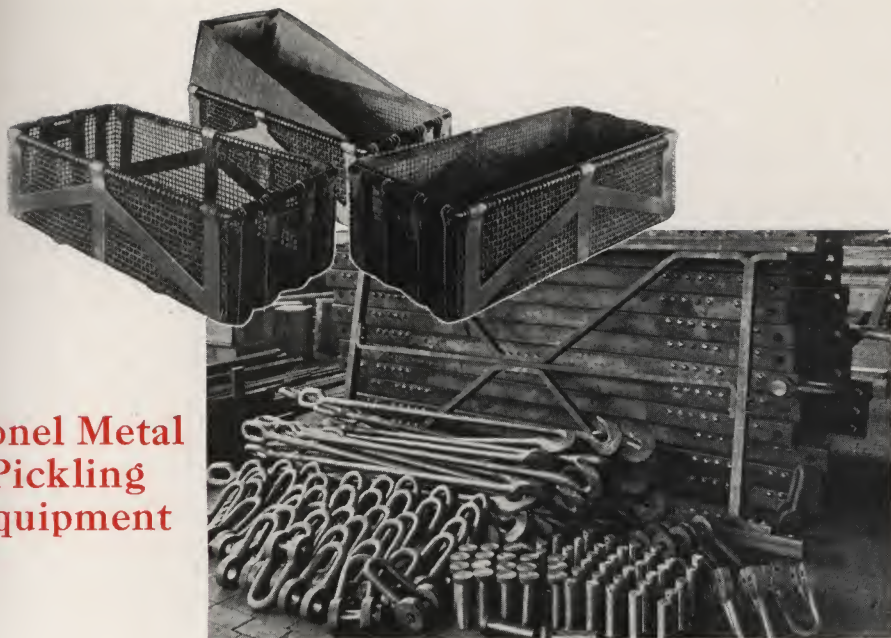
The toughness of Monel Metal is of importance in its use for impellers and turbine blading where extreme resistance to sheer impact is necessary in case of accident. Pump rods, shafting and various machine parts of Monel Metal depend upon its toughness.

The use of Monel Metal rod for propeller shafts has become general; standard makes being regularly so equipped. Monel Metal propeller shafts eliminate "whip" and save many breakages, with their resultant loss of time and money.



PUMP USING MONEL METAL SHAFT

Monel Metal Pickling Equipment



FORGED MONEL METAL RACKS, PINS AND BARS

PICKLING is one of the severest types of service metals are called upon to withstand and, the fact, that Monel Metal crates, pickle-pins, tie-rods and other equipment successfully stand up against the action of acid cleaning solutions speaks volumes for the properties of the metal.

The use of Monel Metal sections permits the construction of crates with a far greater inside capacity than is obtainable from wooden crates of the same dimensions. The useful capacity of the average tank may be increased by as much as 50% or more by changing over to Monel Metal. Other savings realized include: fewer tanks to buy, repair and replace, fewer tie rods to renew, less loss of acid through leakage, less water to handle and pay for, less steam for heating, less accessory equipment, less number of spare crates required for repair shop, less space occupied by tanks.

There are three other very important reasons which explain why Monel Metal has been so extensively adopted for pickling crates. Wood crates soak up a great weight of water and acid, are heavy to handle in consequence, and also carry out acid into the water and soda tanks. This is wasteful of acid, of soda, and of power to handle the weight of useless soaked up liquid. Monel Metal crates will not soak up a drop.

Monel Metal crates can be sent through a dryer without damage. Where the design of crate or the type of product is such that the ware to be cleaned can be drained in the crate, drying in the pickling crate will eliminate one piece-by-piece handling.

The life of Monel Metal crates is many times that of wooden crates, and practically no repairs to the Monel Metal crates are required. There are crates of Monel Metal that have been in service over six years and are still as good as new.

For any process where metal goods are to be cleaned in hot or cold solutions of sulphuric or muriatic acids, the use of Monel Metal throughout for tanks, bolts, carriers, crates, hooks, outlets or any other accessory will affect genuine economies in both maintenance and operating costs of the cleaning department.



INCO HOT ROLLED MONEL METAL FLATS

Standard Rectangular Sizes
 Prompt Shipment from Our Warehouse Stocks
 Lengths about 8 to 16 Feet

Size of Bar Inches	Weight per Linear Foot	Size of Bar Inches	Weight per Linear Foot	Size of Bar Inches	Weight per Linear Foot
$\frac{1}{8}$ x $\frac{1}{2}$	.242	$\frac{3}{16}$ x $\frac{1}{2}$	.363	$\frac{1}{4}$ x $\frac{1}{2}$	.484
$\frac{1}{8}$ x $\frac{5}{8}$	.302	$\frac{3}{16}$ x $\frac{5}{8}$	.454	$\frac{1}{4}$ x $\frac{5}{8}$	.604
$\frac{1}{8}$ x $\frac{3}{4}$	.363	$\frac{3}{16}$ x $\frac{3}{4}$	.545	$\frac{1}{4}$ x $\frac{3}{4}$	.726
$\frac{1}{8}$ x $\frac{7}{8}$	.423	$\frac{3}{16}$ x $\frac{7}{8}$	.635	$\frac{1}{4}$ x $\frac{7}{8}$	.846
$\frac{1}{8}$ x 1	.484	$\frac{3}{16}$ x 1	.726	$\frac{1}{4}$ x 1	.968
$\frac{1}{8}$ x $1\frac{1}{8}$	.545	$\frac{3}{16}$ x $1\frac{1}{8}$	.817	$\frac{1}{4}$ x $1\frac{1}{8}$	1.090
$\frac{1}{8}$ x $1\frac{1}{4}$	.605	$\frac{3}{16}$ x $1\frac{1}{4}$	.908	$\frac{1}{4}$ x $1\frac{1}{4}$	1.210
$\frac{1}{8}$ x $1\frac{3}{8}$	.666	$\frac{3}{16}$ x $1\frac{3}{8}$	.999	$\frac{1}{4}$ x $1\frac{3}{8}$	1.332
$\frac{1}{8}$ x $1\frac{1}{2}$	.726	$\frac{3}{16}$ x $1\frac{1}{2}$	1.090	$\frac{1}{4}$ x $1\frac{1}{2}$	1.452
$\frac{1}{8}$ x $1\frac{3}{4}$	.847	$\frac{3}{16}$ x $1\frac{3}{4}$	1.271	$\frac{1}{4}$ x $1\frac{3}{4}$	1.694
$\frac{1}{8}$ x 2	.969	$\frac{3}{16}$ x 2	1.452	$\frac{1}{4}$ x 2	1.938
$\frac{1}{8}$ x $2\frac{1}{4}$	1.090	$\frac{3}{16}$ x $2\frac{1}{4}$	1.635	$\frac{1}{4}$ x $2\frac{1}{4}$	2.180
$\frac{1}{8}$ x $2\frac{1}{2}$	1.211	$\frac{3}{16}$ x $2\frac{1}{2}$	1.816	$\frac{1}{4}$ x $2\frac{1}{2}$	2.422
$\frac{1}{8}$ x 3	1.453	$\frac{3}{16}$ x 3	2.180	$\frac{1}{4}$ x 3	2.906
$\frac{1}{8}$ x $3\frac{1}{2}$	1.695	$\frac{3}{16}$ x $3\frac{1}{2}$	2.542	$\frac{1}{4}$ x $3\frac{1}{2}$	3.390
$\frac{1}{8}$ x 4	1.938	$\frac{3}{16}$ x 4	2.906	$\frac{1}{4}$ x 4	3.876
$\frac{5}{16}$ x $\frac{1}{2}$	.605	$\frac{3}{8}$ x $\frac{1}{2}$	.726	$\frac{1}{2}$ x $\frac{5}{8}$	1.208
$\frac{5}{16}$ x $\frac{5}{8}$	.757	$\frac{3}{8}$ x $\frac{5}{8}$	.906	$\frac{1}{2}$ x $\frac{3}{4}$	1.452
$\frac{5}{16}$ x $\frac{3}{4}$	.908	$\frac{3}{8}$ x $\frac{3}{4}$	1.089	$\frac{1}{2}$ x 1	1.936
$\frac{5}{16}$ x $\frac{7}{8}$	1.059	$\frac{3}{8}$ x $\frac{7}{8}$	1.269	$\frac{1}{2}$ x $1\frac{1}{4}$	2.420
$\frac{5}{16}$ x 1	1.211	$\frac{3}{8}$ x 1	1.372	$\frac{1}{2}$ x $1\frac{1}{2}$	2.904
$\frac{5}{16}$ x $1\frac{1}{8}$	1.362	$\frac{3}{8}$ x $1\frac{1}{8}$	1.635	$\frac{1}{2}$ x $1\frac{3}{4}$	3.388
$\frac{5}{16}$ x $1\frac{1}{4}$	1.514	$\frac{3}{8}$ x $1\frac{1}{4}$	1.815	$\frac{1}{2}$ x 2	3.876
$\frac{5}{16}$ x $1\frac{3}{8}$	1.665	$\frac{3}{8}$ x $1\frac{3}{8}$	1.998	$\frac{1}{2}$ x $2\frac{1}{4}$	4.360
$\frac{5}{16}$ x $1\frac{1}{2}$	1.814	$\frac{3}{8}$ x $1\frac{1}{2}$	2.178	$\frac{1}{2}$ x $2\frac{1}{2}$	4.844
$\frac{5}{16}$ x $1\frac{3}{4}$	2.119	$\frac{3}{8}$ x $1\frac{3}{4}$	2.541	$\frac{1}{2}$ x 3	5.812
$\frac{5}{16}$ x 2	2.422	$\frac{3}{8}$ x 2	2.907	$\frac{1}{2}$ x $3\frac{1}{2}$	6.780
$\frac{5}{16}$ x $2\frac{1}{4}$	2.725	$\frac{3}{8}$ x $2\frac{1}{4}$	3.270	$\frac{1}{2}$ x 4	7.752
$\frac{5}{16}$ x $2\frac{1}{2}$	3.027	$\frac{3}{8}$ x $2\frac{1}{2}$	3.633	$\frac{1}{2}$ x $4\frac{1}{2}$	8.721
$\frac{5}{16}$ x 3	3.633	$\frac{3}{8}$ x 3	4.359	$\frac{1}{2}$ x 5	9.690
$\frac{5}{16}$ x $3\frac{1}{2}$	4.237	$\frac{3}{8}$ x $3\frac{1}{2}$	5.085	$\frac{1}{2}$ x 6	11.628
$\frac{5}{16}$ x 4	4.844	$\frac{3}{8}$ x 4	5.814		
$\frac{5}{8}$ x $\frac{3}{4}$	1.816	$\frac{3}{4}$ x 1	2.907	1 x $1\frac{1}{4}$	4.845
$\frac{5}{8}$ x 1	2.422	$\frac{3}{4}$ x $1\frac{1}{4}$	3.633	1 x $1\frac{1}{2}$	5.814
$\frac{5}{8}$ x $1\frac{1}{4}$	3.028	$\frac{3}{4}$ x $1\frac{1}{2}$	4.360	1 x 2	7.752
$\frac{5}{8}$ x $1\frac{1}{2}$	3.633	$\frac{3}{4}$ x 2	5.814	1 x $2\frac{1}{2}$	9.690
$\frac{5}{8}$ x 2	4.845	$\frac{3}{4}$ x $2\frac{1}{2}$	7.267	1 x 3	11.628
$\frac{5}{8}$ x $2\frac{1}{2}$	6.056	$\frac{3}{4}$ x 3	8.721	1 x 4	15.504
$\frac{5}{8}$ x 3	7.267	$\frac{3}{4}$ x $3\frac{1}{2}$	10.174	1 x 5	19.380
$\frac{5}{8}$ x $3\frac{1}{2}$	8.478	$\frac{3}{4}$ x 4	11.628	1 x 6	23.256
$\frac{5}{8}$ x 4	9.690	$\frac{3}{4}$ x 5	14.535		
		$\frac{3}{4}$ x 6	17.442		

See page 46 for prices and mill limits.

Sizes not listed made to order for prompt mill shipment.

Variations from above weights must be expected in practice.



INCO HOT ROLLED PURE NICKEL RODS

Round—Square—Hexagon

Immediate Shipment from Our Warehouse Stocks

Lengths about 6 to 16 Feet

Diameter of Rod Inches	Decimal Equivalent in Inches	Weight per Linear Foot Indicates Sizes Available		
		Round	Hexagon	Square
$\frac{1}{4}$	.250	.190	....	....
$\frac{5}{16}$	.312	.297	....	....
$\frac{3}{8}$	.375	.428	.472	.545
$\frac{7}{16}$	.437	.583	.643	.742
$\frac{1}{2}$	.500	.761	.839	.969
$\frac{9}{16}$	.562	.963	1.062	....
$\frac{5}{8}$	.625	1.189	1.311	1.514
$\frac{11}{16}$	.687	1.439	1.586	....
$\frac{3}{4}$	.750	1.712	1.887	2.180
$\frac{13}{16}$	.812	2.010	2.216	....
$\frac{7}{8}$	.875	2.331	2.570	2.968
$\frac{15}{16}$	.937	2.766	....	....
1	1.000	3.044	3.356	3.876
$1\frac{1}{16}$	1.062	3.436	3.788	....
$1\frac{1}{8}$	1.125	3.853	4.248	4.906
$1\frac{1}{4}$	1.250	4.756	5.243	6.056
$1\frac{3}{8}$	1.375	5.756	6.346	7.328
$1\frac{1}{2}$	1.500	6.849	7.551	8.752
$1\frac{5}{8}$	1.625	8.039	....	....
$1\frac{3}{4}$	1.750	9.321	....	....
2	2.000	12.128	....	....
$2\frac{1}{8}$	2.125	13.747	....	....
$2\frac{1}{4}$	2.250	15.411	....	....
$2\frac{3}{8}$	2.375	17.171	....	....
$2\frac{1}{2}$	2.500	19.027	....	....
$2\frac{3}{4}$	2.750	23.022	....	....
3	3.000	27.309	....	....

See page 46 for prices and mill limits.

Sizes not listed made to order promptly.

Rectangular or special shaped Nickel Rod made to order.

Cold Drawn Round Nickel Rods—All Standard Sizes—Prompt Mill Shipment.

See page 46 for price list.

Variations from above weights must be expected in practice.



INCO HOT ROLLED MONEL METAL AND PURE NICKEL ANGLES

Monel Metal Base Price ¢ per lb. f. o. b. our Warehouse

Nickel Base Price ¢ per lb. f. o. b. our Warehouse

EXTRAS OVER BASE PRICE

FOR SIZE AND QUANTITY (cents per lb.)

STANDARD OR SQUARE ROOT

SIZE	MILL LENGTHS 6 TO 18 FEET						
	10,000 lbs. or over	6,000 lbs. or over	2,000 lbs. or over	500 lbs. or over	100 lbs. or over	Less than 100 lbs.	Approx. Weight lbs. per foot
	¢	¢	¢	¢	¢	¢	
$1\frac{1}{4}" \times 1\frac{1}{4}" \times \frac{1}{8}"$	2.0	2.5	3.0	4.0	6.0	8.0	1.6
$1\frac{1}{4}" \times 1\frac{1}{4}" \times \frac{3}{16}"$	1.0	1.5	2.0	3.0	5.0	7.0	2.4
$1\frac{1}{4}" \times 1\frac{1}{4}" \times \frac{1}{4}"$	Base	0.5	1.0	2.0	4.0	6.0	3.2
$2" \times 2" \times \frac{1}{8}"$	2.0	2.5	3.0	4.0	6.0	8.0	1.9
$2" \times 2" \times \frac{3}{16}"$	1.0	1.5	2.0	3.0	5.0	7.0	2.9
$2" \times 2" \times \frac{1}{4}"$	Base	0.5	1.0	2.0	4.0	6.0	3.9
$2" \times 2" \times \frac{3}{8}"$	Base	0.5	1.0	2.0	4.0	6.0	5.8
$2" \times 2" \times \frac{1}{2}"$	Base	0.5	1.0	2.0	4.0	6.0	7.8
$2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{3}{16}"$	1.0	1.5	2.0	3.0	5.0	7.0	3.5
$2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{1}{4}"$	Base	0.5	1.0	2.0	4.0	6.0	4.7
$3" \times 3" \times \frac{1}{4}"$	Base	0.5	1.0	2.0	4.0	6.0	5.6
$3" \times 3" \times \frac{3}{8}"$	Base	0.5	1.0	2.0	4.0	6.0	5.6

SPECIAL EXTRAS

CUTTING EXTRAS

- For cutting to specified length 12" and over add 3¢ per lb. to schedule.
- Lengths under 12"—prices on application.

NO CUTTING EXTRA IN FOLLOWING CASES

- Lengths from 12" to less than 72" for mill delivery.
- Specified lengths ordered for mill delivery with the provision that lengths under 72" or multiples thereof will be acceptable.

EXTRAS FOR SPECIAL SIZES AND LONG LENGTHS

- Prices on application.

EXTRA FOR ANNEALING

- Add 2¢ per pound.

EXTRA FOR GRINDING

- Grinding both outside surfaces add 12¢ per lineal foot. (Mill Delivery.)

(Note)—A special extra is charged for grinding items of less than 100 feet.

SHIPPING PRACTICE

Standard practice is to ship Hot Rolled Angles in bundles of approximately 300 lbs. each. Boxing when required will be invoiced at cost.

Stock List on page 39.



Price Schedule

INCO MONEL METAL AND PURE NICKEL
COLD DRAWN RODS

Monel Base Price.....¢ per pound, f. o. b. our Warehouse

Nickel Base Price.....¢ per pound, f. o. b. our Warehouse

Schedule Showing Extras per Pound for Size and Quantity Over Base Price
Base price upon application

ROUNDS, HEXAGONS, SQUARES, FLATS

SIZE	10,000 lbs. or over	6,000 lbs. or over	2,000 lbs. or over	500 lbs. or over	100 lbs. or over	Less than 100 lbs.
Rounds	¢	¢	¢	¢	¢	¢
½" to ¾" by ⅛ths.....	3.0	3.5	4.0	4.5	5.0	5.5
⅜" to 1½" by ⅛ths.....	2.0	2.5	3.0	3.5	4.0	4.5
1 ⅛" to 3" by ⅛ths.....	1.0	1.5	2.0	2.5	3.0	3.5
Dies will be made for intermediate sizes—price upon application.						
Hexagons and Squares						
½" to ¾" by ⅛ths.....	4.0	4.5	5.0	5.5	6.0	6.5
⅜" to 1½" by ⅛ths.....	3.0	3.5	4.0	4.5	5.0	5.5
1 ⅛" to 2" by ⅛ths.....	2.0	2.5	3.0	3.5	4.0	4.5
For intermediate sizes—prices upon application. Hexagons are measured across the flat sides.						
*Flats						
Width Thickness						
⅜" to ¾" x ⅜" to ¾".....	4.0	4.5	5.0	5.5	6.0	6.5
⅜" to 1" x ¼" to 1".....	3.0	3.5	4.0	4.5	5.0	5.5
1 ⅛" to 1¼" x ⅝" to 1¼".....	3.0	3.5	4.0	4.5	5.0	5.5
1 ⅛" to 1½" x ⅜" to 1½".....	3.0	3.5	4.0	4.5	5.0	5.5
1 ⅛" to 1¾" x ⅝" to 1¾".....	2.0	2.5	3.0	3.5	4.0	4.5
1 ⅜" to 2" x ½" to 2".....	2.0	2.5	3.0	3.5	4.0	4.5
2 ⅛" to 2¼" x ¾" to 2¼".....	2.0	2.5	3.0	3.5	4.0	4.5
2 ⅛" to 2½" x 1" to 2½".....	2.0	2.5	3.0	3.5	4.0	4.5
2 ⅛" to 2¾" x 1¼" to 2¾".....	2.0	2.5	3.0	3.5	4.0	4.5
*A die charge will be made for sizes in which dies are not stocked.						

SPECIAL EXTRAS

CUTTING EXTRAS

1. For cutting to exact length 12" and over add 2c. per pound.
2. For cutting to exact length under 12"—price on application.

NO CUTTING EXTRA IN FOLLOWING CASES

3. Lengths from 12" to less than 72" for mill delivery.
4. Specified lengths ordered for mill delivery with the provision that lengths under 72" or multiples thereof will be acceptable.

EXTRAS FOR LONG LENGTHS

- | | |
|-------------------------|------------|
| Length | Extra |
| Over 16 ft. to 18 ft.— | 1¢ per lb. |
| Over 18 ft. to 20 ft.— | 2¢ per lb. |
| Over 20 ft. to 22 ft.— | 3¢ per lb. |
| Over 22 ft. to 24 ft.— | 4¢ per lb. |
| †Over 24 ft. to 26 ft.— | 5¢ per lb. |

†Limited to sizes 2" in diameter and under, or equivalent cross section.

ADDITIONAL EXTRAS

5. Boxing for quantities of less than 100 lbs. will be invoiced at cost.

EXTRA FOR SPECIAL STRAIGHTNESS

6. Shafting or Rods prepared and tested to meet special straightness tolerances—add 1¢ per lb.

EXTRA FOR ANNEALING

7. Soft Annealed—add 2¢ per lb.

EXTRA FOR SPECIAL SHAPES

8. Quoted on application.

MILL LENGTHS

Standard Mill Lengths 6 to 16 ft.
In filling orders for Random Mill Lengths we will not ship over 25% by weight in lengths under 12 ft.

See following pages for sizes carried in Stock.



INCO COLD DRAWN MONEL METAL RODS

Immediate Shipment from Our Warehouse Stocks

Lengths about 8 to 14 Feet

Diameter of Rod Inches	Decimal Equivalent in Inches	Weight per Linear Foot Indicates Stock Sizes	
		Round	Hexagon
$\frac{1}{16}$	.062	.012	....
$\frac{3}{32}$	.093	.024	....
$\frac{1}{8}$	.125	.048	....
$\frac{5}{32}$	.156	.083	....
$\frac{3}{16}$	.187	.108	....
$\frac{7}{32}$	.218	.167	....
$\frac{1}{4}$	.250	.190	.209
$\frac{5}{16}$	.312	.297	.327
$\frac{3}{8}$	.375	.428	.472
$\frac{7}{16}$	.437	.583	.643
$\frac{1}{2}$	.500	.761	.839
$\frac{9}{16}$	.562	.963	1.062
$\frac{5}{8}$	.625	1.189	1.311
$\frac{11}{16}$	.687	1.439	1.586
$\frac{3}{4}$	.750	1.712	1.887
$\frac{13}{16}$	.812	2.010	2.216
$\frac{7}{8}$	.875	2.331	2.570
$\frac{15}{16}$	.937	2.766	2.940
1	1.000	3.044	3.356
$1\frac{1}{16}$	1.062	3.436	3.788
$1\frac{1}{8}$	1.125	3.853	4.248
$1\frac{3}{16}$	1.187	4.293	4.733
$1\frac{1}{4}$	1.250	4.756	5.243
$1\frac{5}{16}$	1.312	5.244	5.782
$1\frac{3}{8}$	1.375	5.756	6.346
$1\frac{7}{16}$	1.437	6.291	6.934
$1\frac{1}{2}$	1.500	6.849	7.551
$1\frac{9}{16}$	1.562	7.432	8.194
$1\frac{5}{8}$	1.625	8.039	8.863
$1\frac{3}{4}$	1.750	8.669	10.276
$1\frac{11}{16}$	1.812	10.001	11.026
$1\frac{7}{8}$	1.875	10.702	11.799
2	2.000	12.178	13.426
$2\frac{1}{8}$	2.125	13.747	.....
$2\frac{1}{4}$	2.250	15.411	.....
$2\frac{1}{2}$	2.500	19.027	.....

See page 53 for price schedule and mill limits.

The smaller sizes of round rods ($\frac{1}{16}$ " to $\frac{5}{16}$ ") give satisfactory results when used for gas welding purposes.

Special welding rods to order.

Variations from above weights must be expected in practice.



WELDING MONEL METAL SHEETS

Monel Metal Welding Instructions

IT is necessary to use a number of different methods of joining Monel Metal and Pure Nickel in fabrication processes; and welding, brazing and soldering are the methods used.

With Monel Metal and Pure Nickel, certain precautions are necessary and anyone unfamiliar with these two metals should obtain from us the working instructions which are published by The International Nickel Company, Inc., New York. These instructions give full details regarding welding processes—electric-arc welding, acetylene torch welding, electric butt welding, electric spot welding or riveting. Details are given for the joining of sheet and tube products of Monel Metal and Pure Nickel, brazing and silver soldering and soft soldering.

The instructions are necessarily too long to summarize here. It may be said, however, that there is no difficulty in handling either Monel Metal or Pure Nickel if the instructions are carefully adhered to, although, of course, a certain amount of experience is necessary before the best results can be obtained.



PRICE SCHEDULE AND MILL LIMITS INCO WELDED MONEL METAL TUBING

Gauge and Size Differentials (cents per lb.—add to base price)

Mill Lengths 5 to 17 feet

Thick- ness	Stub's or Bir- mingham's Gauge	Dec. Inch	Outside Diameter in Inches																	
			¼	⅜	½	⅝	¾	⅞	1	1¼	1½	1¾	2	2¼	2½	2¾	3	3½	4	
20	.035	¢ Per Lb. Extra	50	40	22	20	17	15	13	10	*	*	*	*	*	*	*	*		
		Theor. Wt. Per Foot	.091	.143	.196	.249	.301	.355	.408	.513	*	*	*	*	*	*	*	*	*	
18	.049	¢ Per Lb. Extra	45	35	20	18	15	13	10	7	4	5	6	8	10	*	*	*		
		Theor. Wt. Per Foot	.119	.192	.266	.341	.414	.488	.562	.711	.858	1.010	1.154	1.310	1.453	*	*	*	*	
16	.065	¢ Per Lb. Extra	40	30	18	15	12	10	9	5	3	4	5	6	8	10	13	16	20	
		Theor. Wt. Per Foot	.145	.243	.341	.439	.537	.636	.737	.929	1.126	1.321	1.518	1.714	1.912	2.107	2.302	2.695	3.087	
14	.083	¢ Per Lb. Extra	*	*	*	*	10	9	7	5	2	Base	3	4	6	8	11	14	18	
		Theor. Wt. Per Foot	*	*	*	*	.668	.793	.917	1.169	1.417	1.669	1.917	2.167	2.417	2.667	2.917	3.417	3.933	

*Outside of Mill Limits.

SPECIAL EXTRAS

QUANTITY EXTRAS

1. Less than 500 lbs. of a size—add 3% to schedule price.
Less than 100 lbs. of a size—add 5% to schedule price.
2. In sizes from 2" to 4" o. d. inclusive, orders for 1000' or more of a size and gauge will take list price for 2" o. d. of gauge ordered.

CUTTING EXTRAS

3. For cutting to exact length 5' and over add 5c. per lb.
4. Under 24" long—prices upon application.

NO CUTTING EXTRAS IN FOLLOWING CASES

5. Lengths from 2' to less than 5'. (Mill delivery.)
6. Lengths 5' and over in quantities of 1000' or more from mill production.
7. Tubes ordered for mill delivery with the provision that smaller units or multiples will be acceptable.
8. Crating or boxing of less than 100 lbs. of a size will be invoiced at cost.

SPECIAL SIZES AND SHAPES

9. Intermediate sizes and gauges—prices upon application.
10. Square, Rectangular, and Fancy Shapes—upon application.
11. The above sizes with the exception of 1/4" o. d. can be furnished in open seam tubing at 5% under the schedule price.
12. No. 3 Satin Grind Finish—prices upon application.

See list of stock sizes on page 57.



INCO ROUND GAS WELDED MONEL METAL TUBING

Immediate Shipment from Our Warehouse Stocks

Lengths 6 to 16 Feet

Outside Dia. of Tube Inches	Thickness of Wall Stub's Gauge Inches	Inside Diameter of Tube Inches	Approx. Weight per Lin. Ft. Pounds	Outside Dia. of Tube Inches	Thickness of Wall Stub's Gauge Inches	Inside Diameter of Tube Inches	Approx. Weight per Lin. Ft. Pounds
$\frac{1}{4}$	.035	.180	.091	1	.065	.870	.737
$\frac{1}{4}$	.065	.120	.145	1	.083	.834	.917
$\frac{3}{16}$	.042	.228	.138	$1\frac{1}{8}$	.083	.959	1.050
$\frac{3}{16}$	.049	.214	.156	$1\frac{1}{4}$	.035	1.180	.513
$\frac{3}{8}$	.035	.305	.143	$1\frac{1}{4}$	.049	1.152	.711
$\frac{3}{8}$	.049	.277	.192	$1\frac{1}{4}$	.065	1.120	.929
$\frac{3}{8}$	.065	.245	.243	$1\frac{1}{4}$	.083	1.084	1.169
$\frac{7}{16}$	.035	.367	.171	$1\frac{3}{8}$	.049	1.277	.790
$\frac{7}{16}$	.049	.339	.231	$1\frac{3}{8}$	.065	1.245	1.030
$\frac{1}{2}$	.035	.430	.196	$1\frac{1}{2}$	.035	1.430	.621
$\frac{1}{2}$	.049	.402	.266	$1\frac{1}{2}$	.049	1.402	.859
$\frac{1}{2}$	.065	.370	.341	$1\frac{1}{2}$	.065	1.370	1.126
$\frac{9}{16}$	.035	.492	.224	$1\frac{1}{2}$	.083	1.334	1.417
$\frac{5}{8}$	.035	.555	.249	$1\frac{5}{8}$	.083	1.459	1.550
$\frac{5}{8}$	.049	.527	.341	$1\frac{3}{4}$	.049	1.652	1.010
$\frac{5}{8}$	.065	.495	.439	$1\frac{3}{4}$	.065	1.620	1.321
$\frac{11}{16}$	.065	.557	.490	$1\frac{3}{4}$	.083	1.584	1.669
$\frac{3}{4}$	.035	.680	.301	2	.049	1.902	1.154
$\frac{3}{4}$	.049	.652	.414	2	.065	1.870	1.518
$\frac{3}{4}$	.065	.620	.537	2	.083	1.834	1.917
$\frac{3}{4}$	.083	.584	.668	$2\frac{1}{4}$	.049	2.152	1.310
$\frac{7}{8}$	.049	.777	.488	$2\frac{1}{4}$	.083	2.084	2.167
$\frac{7}{8}$	.065	.745	.636	$2\frac{1}{2}$	.049	2.402	1.453
$\frac{7}{8}$	.083	.709	.793	$2\frac{1}{2}$	.065	2.370	1.912
$\frac{15}{16}$	.035	.867	.383	3	.065	2.870	2.302
$\frac{15}{16}$	.083	.771	.860	3	.083	2.834	2.917
1	.035	.930	.408	4	.065	3.870	3.087
1	.049	.902	.562	4	.083	3.834	3.933

See page 56 for list extras on the above sizes.

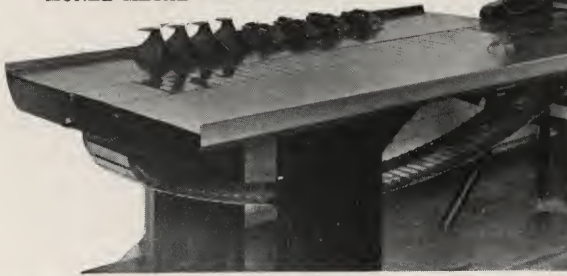
Variations from above weights must be expected in practice.

Diameters and gauges not listed made to your order for prompt mill shipment.

See page 15 for description of the manufacture of Gas Welded Monel Metal Tubing;
also for Expansion and Pressure tests.



MONEL METAL HAM BOILER



SAUSAGE LINKING MACHINE WITH MONEL METAL TABLE



MONEL METAL PEA BLANCHER

Packing Plants and Canneries Find Monel Metal an Economy

ALTHOUGH Monel Metal is one of the most widely used metals in industry today, it is doubtful whether its advantages are anywhere so conspicuously apparent as they are in the wide range of applications in the food production and food service industries. Monel Metal covers a variety of uses in the meat packing and canning industries. Employed at first for table tops and straightforward sheet metal applications, it is today becoming more and more closely identified with special machinery and equipment for which it is recognized to be the standard material for use in contact with the product.

In the modern meat packing plant one can find Monel Metal used for cutting tables and slicing machines, viscera tables, utensils, sausage linkers, overhead trolley systems, meat hooks, caul fat boxes, refrigerator trim, ham boilers, bake loaf pans, trucks, ovens, spice boxes, trays and many other purposes. In the canneries Monel Metal table tops, kettles, filling machines, utensils and special machinery are widely used.

The experience of the plants that are using Monel Metal has shown it to possess definite economic advantages which impartial investigation may resolve into traceable savings in dollars and cents. The cost of cleaning, to mention but one item, has been considerably reduced in every plant that has adopted Monel Metal surfaces. The savings accruing through longer life are obvious, especially for such standard equipment as table tops. And so far as special equipment is concerned, it is worth noting that Monel Metal is at once available in many forms and readily handled by the experienced worker. The increasing list of uses to which Monel Metal is being put is in part evidence that the foregoing facts are being more generally realized.



SEAMLESS DRAWN PAILS AND PANS

Manufactured from INCO Monel Metal

MONEL METAL STANDARD SEAMLESS PAIL

with Monel Metal Ears, Rivets and Bail



MONEL METAL STANDARD SEAMLESS PAIL

with Monel Metal Ears, Rivets, Bail and Chime



Capacity in quarts.....	12	14	16
Thickness U.S.S. gauge.....	26	24	23
List Price each..	\$6.50	\$8.00	\$9.50

Capacity in quarts.....	12	14	16
Thickness U.S.S. gauge.....	26	24	23
List Price each..	\$8.00	\$10.00	\$11.50

MONEL METAL SEAMLESS PACKERS' PANS

with Rolled Rim



Capacity in quarts.....	10	14	17
Thickness U.S.S. gauge.....	23	22	22
List Price each.....	\$5.50	\$7.00	\$8.50

MONEL METAL HEAVY DUTY SEAMLESS PAIL

with Monel Metal Ears, Rivets, Bail and Back-handle



MONEL METAL HEAVY DUTY SEAMLESS PAIL

with Monel Metal Ears, Rivets, Bail, Chime and Back-handle



Capacity in quarts.....	12
Thickness U. S. S. gauge.....	20
List Price each.....	\$12.50

Capacity in quarts.....	12
Thickness U. S. S. gauge.....	20
List Price each.....	\$14.50

Discounts will be Quoted upon Application.

These pails are packed 1/2 dozen to a crate but there will be an additional charge for packing of less than 1/2 dozen lots.



Price Schedule
INCO PURE NICKEL SEAMLESS TUBING

COLD DRAWN

Base Price ¢ per lb. f. o. b. our Warehouse

Gauge and Size Differentials (cents per lb.—add to base price)

Thickness		OUTSIDE DIAMETER IN INCHES																							
Stubs' Gauge	Dec. Inch	¼	⅜	½	⅝	¾	⅞	1	1 ⅛	1 ¼	1 ⅝	1 ¾	1 ⅞	2	2 ⅛	2 ¼	2 ⅝	2 ¾	3	3 ⅛	3 ¼	3 ⅝	3 ¾	3 ⅞	4
8	.165	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9	.148	*	*	*	*	*	*	*	*	*	18	18	18	18	16	16	12	10	10	10	10	10	10	10	10
10	.134	*	*	76	60	50	40	38	30	20	20	20	20	18	18	15	12	12	12	12	12	12	12	12	12
11	.120	*	*	85	67	52	48	46	33	25	25	23	20	20	20	16	15	14	14	14	14	14	14	14	14
12	.109	*	*	90	70	58	50	47	36	34	27	25	22	20	20	16	16	16	16	16	16	16	16	16	15
13	.095	*	*	94	74	64	53	48	40	35	31	26	24	22	22	18	16	16	16	16	16	16	16	16	16
14	.083	180	140	103	84	68	58	50	43	40	33	31	28	24	24	20	20	20	20	20	20	20	20	20	20
15	.072	200	150	110	88	72	60	52	46	40	35	35	35	25	25	20	20	20	20	20	20	20	20	20	20
16	.065	220	185	133	103	88	75	65	56	48	44	38	35	30	28	28	28	28	26	26	25	25	25	25	25
17	.058	240	200	142	114	96	80	70	60	53	47	43	36	34	31	31	30	30	30	30	30	30	30	30	30
18	.049	250	210	174	146	128	110	95	86	78	70	65	60	60	60	56	53	53	53	53	53	53	53	53	53
19	.042	*	230	200	163	140	123	108	95	85	78	76	76	70	70	70	70	66	65	62	60	60	60	60	60
20	.035	*	*	245	204	168	145	125	105	100	93	93	85	85	85	85	85	85	85	85	85	85	85	85	85

Stubs' Gauge	Dec. Inch	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅝	2¾	3	3⅛	3¼	3⅝	3¾	3⅞	4
8	.165	6	6	6	6	6	6	6	6	6	4	2	Base Price				
9	.148	8	8	8	8	8	8	8	8	8	6	4					
10	.134	10	10	10	10	10	10	10	10	10	8	6	4	3	3	3	2
11	.120	13	13	12	12	12	12	12	12	11	11	11	9	7	6	4	4
12	.109	14	14	14	14	14	14	14	12	12	12	12	10	9	8	6	6
13	.095	16	16	16	16	16	16	16	16	13	12	12	10	9	9	8	8
14	.083	18	18	18	18	18	18	17	16	16	15	12	12	12	10	10	10
15	.072	20	20	20	18	18	18	17	16	16	15	14	14	13	12	11	11
16	.065	23	23	23	23	23	22	21	19	18	16	15	14	14	13	12	12
17	.058	30	30	30	28	26	24	23	21	20	18	17	16	16	*	*	*
18	.049	53	53	52	50	47	45	42	40	38	37	36	35	*	*	*	*
19	.042	60	60	60	56	52	50	50	50	54	65	*	*	*	*	*	*
20	.035	77	74	67	64	58	60	60	60	70	*	*	*	*	*	*	*

*Outside Mill Limits. Intermediate sizes take price of nearest gauge or diameter.

Stock Tables on page 61

QUANTITY EXTRAS

1. Less than 100 lbs. of a size—add 5% to base plus extras.
2. 100 lbs. and over to less than 500 lbs.—add 3% to base plus extras.

CUTTING EXTRAS

3. For cutting to exact length 5' or over add 8% to schedule.
4. Tubes ordered for mill delivery with the provision that lengths under 5 ft. or multiples thereof, no cutting extra.

ADDITIONAL EXTRAS

5. Charge for crating and boxing on less than 100 lbs. of a size.
6. For special lengths over 20'—prices on application.
7. Special sizes not listed can be supplied on orders for 500 lbs. or more of a size, and will take the extra for the nearest smaller size listed. Orders for less than 500 lbs. will be accepted at a price to include the cost of dies. Extra for Special Finish (Outside or Inside) on application. Add 2c. per lb. extra for annealing.

For description of Pure Nickel Seamless Tubing see page 15.



INCO ROUND COLD DRAWN SEAMLESS PURE NICKEL TUBING
Prompt Mill Shipment. Lengths 6 to 16 feet

Outside Dia. of Tube Inches	Thickness of Wall Stub's Gauge In.	Inside Diameter of Tube Inches	Approx. Weight per Lin. Ft. Lbs.	Outside Dia. of Tube Inches	Thickness of Wall Stub's Gauge In.	Inside Diameter of Tube Inches	Approx. Weight per Lin. Ft. Lbs.
1/4	.035	.180	.091	1	.120	.760	1.27
1/4	.049	.152	.118	1 1/8	.065	.995	.828
1/4	.065	.120	.145	1 1/4	.035	1.180	.511
5/16	.049	.214	.155	1 1/4	.065	1.120	.926
5/16	.065	.182	.193	1 1/4	.083	1.084	1.164
3/8	.035	.305	.143	1 1/4	.095	1.060	1.319
3/8	.049	.277	.192	1 1/4	.120	1.010	1.630
3/8	.065	.245	.242	1 1/2	.049	1.402	.855
3/8	.083	.209	.291	1 1/2	.058	1.384	1.005
3/8	.120	.135	.367	1 1/2	.065	1.370	1.121
7/16	.035	.367	.170	1 1/2	.083	1.334	1.414
7/16	.065	.307	.291	1 3/8	.065	1.495	1.219
1/2	.049	.402	.265	1 3/8	.095	1.435	1.747
1/2	.058	.384	.308	1 3/4	.065	1.620	1.317
1/2	.065	.370	.340	1 3/4	.083	1.584	1.664
1/2	.083	.334	.416	1 7/8	.035	1.805	.774
1/2	.095	.310	.462	1 7/8	.042	1.791	.925
9/16	.035	.492	.222	1 7/8	.065	1.745	1.415
9/16	.049	.464	.302	2	.035	1.930	.827
9/16	.058	.446	.351	2	.042	1.916	.988
9/16	.065	.432	.388	2	.058	1.884	1.354
5/8	.035	.575	.248	2	.065	1.870	1.512
5/8	.049	.527	.339	2	.083	1.834	1.913
5/8	.065	.495	.437	2	.095	1.810	2.117
5/8	.083	.459	.541	2	.120	1.760	2.712
5/8	.095	.435	.605	2	.134	1.732	3.007
3/4	.035	.680	.300	2	.165	1.670	3.644
3/4	.049	.652	.413	2 1/4	.083	2.084	2.163
3/4	.058	.634	.482	2 1/4	.120	2.010	3.073
3/4	.065	.620	.535	2 1/2	.049	2.402	1.444
3/4	.083	.584	.665	2 1/2	.058	2.384	1.703
3/4	.095	.560	.748	2 1/2	.065	2.370	1.902
7/8	.035	.805	.353	2 1/2	.095	2.310	2.747
7/8	.049	.777	.486	2 1/2	.120	2.260	3.434
7/8	.065	.745	.633	3	.058	2.884	2.051
7/8	.095	.685	.891	3	.095	2.810	3.318
7/8	.120	.635	1.089	3 1/2	.065	3.370	2.685
1	.035	.930	.406	3 1/2	.083	3.330	3.410
1	.065	.870	.730	4	.083	3.834	3.909
1	.083	.834	.915				

Sizes not listed made to order for prompt mill shipment.
See page 62 for Nickel Pipe—Iron Pipe Size.
List Extras for the above will be found on page 60.
Variations from above weights must be expected in practice.



INCO SEAMLESS PURE NICKEL PIPE

Base Price ¢ per lb. f. o. b. our Warehouse

Standard Iron Pipe Sizes

Mill Lengths 5 to 20 Feet

Size	O. D.	I. D.	Wall	Weight per Ft.	Extra Cts. per Lb.
$\frac{1}{8}$	.405	.269	.068	.274	105
$\frac{1}{4}$	.540	.364	.088	.477	60
$\frac{3}{8}$	.675	.493	.091	.638	40
$\frac{1}{2}$	.840	.622	.109	.957	26
$\frac{3}{4}$	1.050	.824	.113	1.272	20
1	1.315	1.049	.133	1.889	12
$1\frac{1}{4}$	1.660	1.380	.140	2.558	10
$1\frac{1}{2}$	1.900	1.610	.145	3.059	8
2	2.375	2.067	.154	4.112	6
$2\frac{1}{2}$	2.875	2.469	.203	6.522	5
3	3.500	3.068	.216	8.529	5

Mill lengths for sizes 3" to $4\frac{1}{2}$ " inclusive, 5 to 15 feet.

Any of the above sizes can be shipped from mill stock promptly.

SPECIAL EXTRAS

QUANTITY EXTRAS

1. Less than 100 lbs. of a size—add 5% to base plus extras.
2. 100 lbs. and over to less than 500 lbs.—add 3% to base plus extras.

CUTTING EXTRAS

3. For cutting to exact length 5' or over add 8% to schedule.
4. Lengths under 12"—prices upon application.
5. No cutting extra for tubes ordered for mill delivery with the provision that lengths under 5 ft. or multiples thereof will be acceptable.

ADDITIONAL EXTRAS

6. Charge for crating and boxing on less than 100 lbs. of a size.
7. For special lengths over 20'—prices upon application.
8. Special sizes not listed can be supplied on orders for 500 lbs. or more of a size, and will take the extra for the nearest smaller size listed. Orders for less than 500 lbs. will be accepted at a price to include the cost of dies.

EXTRAS FOR SPECIAL FINISH (OUTSIDE OR INSIDE) on application. ANNEALING

9. Add 2¢ per lb. to schedule.



INCO MONEL METAL AND PURE NICKEL WIRE

in all tempers

in coils

STANDARD DIAMETERS

PROMPT MILL SHIPMENT

Diameter Brown & Sharpe's Gauge	Diameter in Dec. Part of an Inch	Weight per 1000 Feet	Number of Feet per Pound	Diameter Brown & Sharpe's Gauge	Diameter in Dec. Part of an Inch	Weight per 1000 Feet	Number of Feet per Pound
1	.289	250.000	3.96	21	.0285	2.480	407.
2	.258	202.000	4.95	22	.0253	1.940	515.
3	.229	159.000	6.30	23	.0226	1.540	648.
4	.204	126.000	7.93	24	.0200	1.260	823.
5	.182	100.000	10.00	25	.0179	.965	1035.
6	.162	79.500	12.60	26	.0159	.763	1310.
7	.144	62.500	16.00	27	.0142	.610	1640.
8	.128	49.500	20.20	28	.0126	.460	2170.
9	.114	38.800	25.70	29	.0113	.385	2600.
10	.102	31.400	31.80	30	.0100	.302	3300.
11	.091	25.000	40.00	31	.0089	.239	4175.
12	.081	19.800	50.40	32	.0080	.194	5150.
13	.072	15.700	63.70	33	.0071	.154	6550.
14	.064	12.400	82.	34	.0063	.120	8330.
15	.057	9.800	102.	35	.0056	.095	10500.
16	.051	7.800	128.	36	.0050	.075	13300.
17	.045	6.100	163.	37	.0045	.061	16300.
18	.040	4.800	207.	38	.0040	.048	20600.
19	.036	3.900	256.	39	.0035	.037	27000.
20	.032	3.100	323.	40	.0031	.029	34500.

Prices on all sizes will be quoted upon application.

When ordering specify temper otherwise soft temper will be furnished.

Wire cut to specific length takes an extra over that furnished in coils.

Extra for wire furnished on spools.

Variations from above weights must be expected in practice.



INCO MONEL METAL SHOT

For making Monel Metal Castings

A large stock on hand at all times in our various warehouses

INCO PURE NICKEL SHOT

Grades "XX"—"F"

Ready to Ship from Warehouse Stock

Grade "XX"—99.5% pure, used for making pure nickel castings and alloying with steel, also used in alloying for Cupro-Nickel, Nickel Silver, Nickel Bronze, etc.

Grade "F"—Of low melting point. For use in addition to Grey Iron Mixtures. (Write for Special Literature.)

INCO MONEL METAL INGOTS

Prompt Shipment from Mill Stock

INCO PURE NICKEL INGOTS

For making Pure Nickel Castings and Alloying of Nickel Silver, Etc.

Prompt Mill Shipment

Approximate dimensions of INCO Nickel Ingots:

50-lb. Size—Top $15\frac{1}{4}$ " long x 5" wide x 3" thick

25-lb. Size—Top $15\frac{1}{4}$ " long x $3\frac{3}{4}$ " wide x $2\frac{3}{4}$ " thick

10-lb. Size—Top $5\frac{3}{4}$ " long x $1\frac{1}{4}$ " wide x $2\frac{3}{8}$ " thick

Prices on the above items upon application

INCO MONEL METAL AND PURE NICKEL CASTINGS

Our foundry at Bayonne, N. J., has had years of experience in producing Monel Metal and Nickel castings in many shapes, both simple and intricate. The many types and applications are too large to mention in a book of this character.

The present plant is equipped to produce castings of any size up to 25,000 pounds in one piece. Specializing in the production of Monel Metal and Nickel castings we are enabled to a high degree of efficiency to turn out castings of the highest quality.

Prices and full particulars will be given upon receipt of blueprint or sketch of the parts desired.



ALLOY CAST IRON MEETS HIGH DUTY REQUIREMENTS

While this Company is not engaged in the production or sale of Iron Castings, we are very much interested in the improvement of the ordinary Grey Iron products. We employ several practical Foundry Engineers who devote their entire time to foundry problems.

Our principals, The International Nickel Company, Inc., maintain a Research Department devoted exclusively to solving questions involving the structure of iron castings.

The addition of Nickel Shot to Grey Iron Castings is now an accepted standard practice. We have special literature detailing how:

YOU CAN SECURE

Grain refinement and reduction of porosity.

Increased hardness and strength.

Equalized hardness over different portions of castings; in thick and thin sections.

Reduction of internal shrinkage and improvement of pressure tightness.

Reduction and control of chill.

Maximum machinable hardness up to 200—250 Brinnell.

Maximum strength in machinable castings, up to 4500—5000 lbs. on arbitration bars.

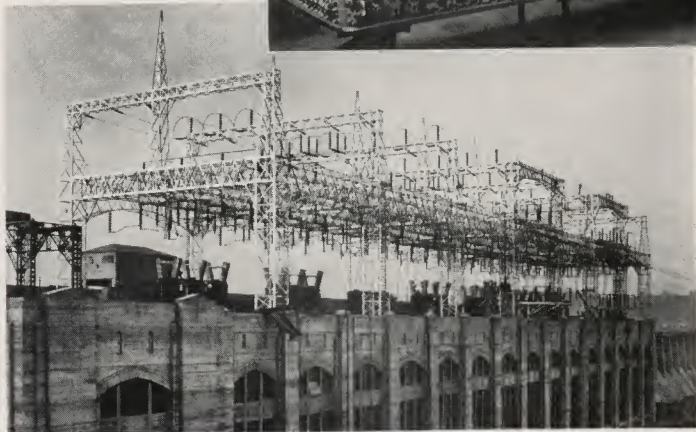
Stabilized machinability and hardness in day-by-day production.

Maximum wear-resistance.

The services or advices of our engineers are offered to you without charge.

If you use any quantity of Grey Iron or Semi-steel Castings you will find it to your advantage to write for

SPECIAL NICKEL IN CAST IRON DATA



OUTDOOR ELECTRICAL EQUIPMENT
UTILIZING MONEL METAL BOLTS AND NUTS

The Electrical Industry Insures Against Failure with Monel Metal Equipment

MONEL METAL is the logical material for bolts, screws, fittings and pole line hardware used in outdoor switching, transmission and distribution installations. This metal meets every severe service requirement: it is a safeguard demanded by the uninterrupted service expected of electrical unattended installations which are subjected to the strains of continuous operation.

Electrical engineers specify Monel Metal because it possesses the combination of properties necessary to withstand mechanical stresses due to strain caused by storm conditions and changes in daily and seasonal temperatures.

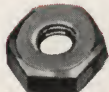
Monel Metal does not rust. Users have found that Monel Metal bolts eliminate freezing of threads and the usual troubles caused by corrosive gasses and moist salt atmospheres. Monel Metal is not affected by low temperatures, which have an embrittling action on most metals. No case of fatigue failure has occurred with Monel Metal bolts used in electrical service. Monel Metal should be regarded as an insurance against failure.



FOR SEVERE SERVICE



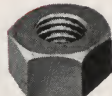
Cap Screw



Hex. Jam Nut Bolt-Nut and Washers



Lock Washer



Hex. Nut

MONEL METAL BOLTS—NUTS—WASHERS—SCREWS AND OTHER ACCESSORIES

Available for Immediate Shipment from Our Warehouse Stocks

USED IN THE CONSTRUCTION OF

Outdoor Substation and Transmission Equipment
Pole Line Work
Railroad Signal Equipment
Power Plant Machinery

COLD HEADED HEXAGON AND SQUARE HEAD BOLTS WITH OR WITHOUT NUTS OR WASHERS

$\frac{1}{4}$ " Dia. x $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", $2\frac{3}{4}$ ", 3", $3\frac{1}{4}$ ", $3\frac{1}{2}$ ", 4"

$\frac{5}{16}$ " Dia. x $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", $2\frac{3}{4}$ ", 3", $3\frac{1}{4}$ ", $3\frac{1}{2}$ ", 4"

$\frac{3}{8}$ " Dia. x $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{8}$ ", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", $2\frac{3}{4}$ ", 3", $3\frac{1}{4}$ ", $3\frac{1}{2}$ ", 4",
 $4\frac{1}{2}$ ", 5", 6"

$\frac{1}{2}$ " Dia. x 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", $2\frac{3}{4}$ ", 3", $3\frac{1}{4}$ ", $3\frac{1}{2}$ ", 4", $4\frac{1}{2}$ ", 5", 6",

$\frac{5}{8}$ " Dia. x 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", 3", $3\frac{1}{2}$ ", 4"

Also see list on page 68 for additional sizes and price list

Hexagon and square nuts and washers for above see pages 70, 71, 72 and 73

CONSULT US ABOUT FOLLOWING PARTS FOR YOUR EQUIPMENT



Terminal Screws with and without Nuts and Washers

"U" BOLTS, MACHINE SCREWS, CAP SCREWS, TERMINAL SCREWS, STUD BOLTS, COTTER PINS, LOCK WASHERS BALLS, RODS AND BARS

A Booklet entitled "Bolts That Will Not Fail" has been prepared showing the General Properties and Applications of Monel Metal. Details of some important tests on the Tensile Strength of Monel Metal Bolts, made by the Electrical Testing Laboratories, will be found in this Booklet. A copy will be sent to you upon request.

**SPECIAL SHAPES AND SIZES MADE TO YOUR SPECIFICATIONS
PROMPTLY**

Prices Quoted upon Application



SQUARE HEAD MONEL METAL MACHINE BOLTS

WITH HEXAGON NUTS—Manufacturers' Standard

ROUND HEAD

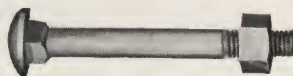
MONEL METAL CARRIAGE OR LOOM BOLTS

Including Hexagon Nuts

Immediate Shipment from Our Warehouse Stocks



Hex. Head—Hex. Nut



Carriage—Hex. Nut



Square Head—Square Nut

Price Per 100 Pieces

Diameter	$\frac{1}{4}$ "	$\frac{3}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$ "	11.24								
$\frac{3}{8}$ "	11.24								
$\frac{3}{4}$ "	11.24	19.00	23.00						
$\frac{7}{8}$ "	11.24	19.00	23.00						
1"	11.24	19.00	23.00	28.00	34.60	59.00			
$1\frac{1}{4}$ "	11.24	19.00	23.00	28.50	35.25	60.00			
$1\frac{1}{2}$ "	11.24	19.00	23.00	29.25	35.92	61.08	89.28		
$1\frac{3}{4}$ "	11.96	20.48	24.48	30.50	37.25	63.50			
2"	11.96	20.48	24.48	31.25	38.52	65.04	95.00	147.30	
$2\frac{1}{4}$ "	12.72	22.00	26.00	33.00	39.84	67.00	98.50		
$2\frac{1}{2}$ "	12.72	22.00	26.00	33.75	41.16	69.04	100.80	153.10	
$2\frac{3}{4}$ "	13.44	23.48	27.48		42.46	71.00			
3"	13.44	23.48	27.48	34.50	43.76	73.00	106.60	162.80	
$3\frac{1}{2}$ "	14.20	25.00	29.00	35.75	46.40	77.00	112.30	170.60	
4"	14.88	26.44	30.44	38.25	49.00	80.96	118.10	178.20	255.40
$4\frac{1}{2}$ "			31.94	41.00	51.62	85.00	123.50		
5"			33.44	44.00	54.24	88.88	129.60	193.70	
$5\frac{1}{2}$ "			34.90		56.86	92.88			
6"			36.40	49.00	59.48	96.84	141.10	209.20	297.20
7"					64.72	104.76	152.60		
8"					69.96	112.80	164.10	240.10	338.90
10"						128.60	187.10	286.50	380.70
12"							210.10	301.90	422.40

The following will indicate extra charges to be added to above list price for the different combinations:

Hexagon Head—With Hexagon Nut—Add 10% to List

Square Head—With Square Nut—Add 10% to List

Hexagon Head—With Square Nut—Add 20% to List

Carriage or Loom Bolts—With Square Nuts—Add 10% to List

Sizes not Listed and Special Types Made to Order.

Discounts Quoted upon Application.

For Nuts and Washers see pages 70, 71, 72 and 73.

PURE NICKEL MACHINE BOLTS

Prices Quoted upon Application



MONEL METAL STOVE BOLTS ONLY

National Standard

Immediate Shipment from Our Warehouse Stocks

Round Head—Flat Head—Oven (Truss) Head

Boxes of 100 Pieces



Round Head



Oven Head



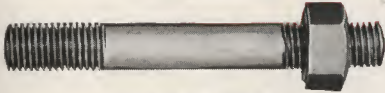
Flat Head

List Price per 100 Without Nuts

ROUND AND FLATHEAD					OVEN HEAD	
Diameter	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "
Thread	24	20	18	16	24	20
Length	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$ "	1.70	3.20	.....	.....	2.25	.....
$\frac{5}{8}$ "	1.95	3.60	.....	.....	2.45	.....
$\frac{3}{4}$ "	2.20	3.80	6.50	.....	3.00	5.10
$\frac{7}{8}$ "	2.50	4.10	.....	.....	.....	.....
1"	2.75	4.40	7.00	8.50	3.45	5.50
1 $\frac{1}{4}$ "	3.15	4.90	8.00	9.95	4.00	6.15
1 $\frac{1}{2}$ "	3.55	5.50	9.00	12.00	4.45	6.90
1 $\frac{3}{4}$"	.....	6.20	10.00	13.40	.....	.....
2"	.....	7.00	11.00	15.00	.....	.....

Discounts upon Application.
Sizes Not Listed Made to Order.
Bolts only will be shipped unless it is specified that Nuts are required.
See page 71 for Prices of Square or Hexagon Nuts to Fit above Bolts.

MONEL METAL STUD BOLTS



Stud Bolt with Nut



Stud Bolt without Nut

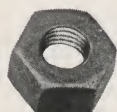
Made to Standard dimensions or your specifications with or without Nuts.
Prices Quoted upon Application.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

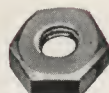


MONEL METAL NUTS

Tapped U. S. S.



Hexagon Nut



Hexagon Jam Nut



Square Nut

Hexagon (Turned—Also, Hot Forged)—Square (Turned)
Hexagon and Square—(Hot Pressed)

Immediate Shipment from Our Warehouse Stocks

List Price per 100

Size Bolt Inches	Number of Threads	HEXAGON		Price	SQUARE		Price
		Width Inches	Thick. Inches		Width Inches	Thick. Inch	
$\frac{3}{16}$	24	$\frac{3}{8}$	$\frac{3}{16}$	\$5.00			
$\frac{1}{4}$	20	$\frac{1}{2}$	$\frac{7}{32}$	7.00			
$\frac{5}{16}$	18	$\frac{9}{16}$	$\frac{9}{32}$	10.00			
$\frac{3}{8}$	16	$\frac{11}{16}$	$\frac{11}{32}$	12.00	$\frac{11}{16}$	$\frac{5}{16}$	\$14.00
$\frac{7}{16}$	14	$\frac{3}{4}$	$\frac{3}{8}$	14.00			
$\frac{1}{2}$	13	$\frac{7}{8}$	$\frac{7}{16}$	16.00	$\frac{7}{8}$	$\frac{7}{16}$	19.00
$\frac{5}{8}$	11	$1\frac{1}{16}$	$\frac{9}{16}$	30.00	$1\frac{1}{16}$	$\frac{9}{16}$	35.00
$\frac{3}{4}$	10	$1\frac{1}{4}$	$\frac{11}{16}$	42.00	$1\frac{1}{4}$	$\frac{11}{16}$	48.00
$\frac{7}{8}$	9	$1\frac{7}{8}$	$\frac{13}{16}$	64.00			
1	8	$1\frac{5}{8}$	$\frac{15}{16}$	88.00			
$1\frac{1}{8}$	7	$1\frac{13}{16}$	1	120.00			
$1\frac{1}{4}$	7	2	$1\frac{1}{8}$	160.00			
$1\frac{3}{8}$	6	$2\frac{3}{16}$	$1\frac{1}{4}$	220.00			
$1\frac{1}{2}$	6	$2\frac{3}{8}$	$1\frac{3}{8}$	290.00			

$\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", Jam Nuts carried in stock. Prices quoted upon application.

Other sizes made to order promptly.

Discounts upon Application.

Blank (No Thread) Nuts—Hexagon or Square—Made to Order Promptly.

Sizes Not Listed Made to Order.

PURE NICKEL NUTS MADE TO ORDER PROMPTLY

Prices Quoted upon Application.

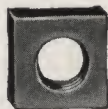


PRESSED MONEL METAL NUTS



Hexagon Nut

For Machine Screws and Stove Bolts
Immediate Shipment from Our
Warehouse Stocks



Square Nut

FOR MACHINE SCREWS List Price per Gross						FOR STOVE BOLTS List Price per 100 Pieces			
Size	Thread	Diameter Across Flat Inch	Thick- ness Inch	Price Square	Price Hexagon	Size Inch	Thread	Price Square	Price Hexagon
2	56	$\frac{3}{16}$	.0625	\$2.00	\$2.50	$\frac{3}{16}$	24	\$1.95	\$2.15
3	48	$\frac{3}{16}$	.0625	2.00	2.50	$\frac{1}{4}$	20	3.20	3.75
4	36	$\frac{1}{4}$	.0937	2.00	2.50	$\frac{5}{16}$	18	6.85	8.10
6	32	$\frac{5}{16}$	.109	2.00	2.50	$\frac{3}{8}$	16	9.35	11.00
8	32	$\frac{11}{32}$	.125	2.56	3.00				
10	32	$\frac{3}{8}$	.125	2.95	3.50				
10	24	$\frac{3}{8}$	.125	2.95	3.50				
$\frac{1}{4}$	20	$\frac{1}{2}$	.188	4.80	5.60				
$\frac{5}{16}$	18	$\frac{9}{16}$	.219	10.25	12.10				
$\frac{3}{8}$	16	$\frac{5}{8}$	.250	14.00	16.40				

Discounts upon Application.
Sizes Not Listed Made to Order.



Wing Nut

PRESSED MONEL METAL WING NUTS

Immediate Shipment from Our Warehouse Stocks

In Bolt and Screw Sizes: $\frac{3}{16}$ " ($\frac{1}{2}$ "), $\frac{1}{4}$ " ($\frac{1}{4}$ -20), $\frac{5}{16}$ " ($\frac{5}{16}$ -18), $\frac{3}{8}$ " ($\frac{3}{8}$ -16), $\frac{7}{16}$ "-
14 and $\frac{1}{2}$ "-13

Prices Quoted upon Application



MONEL METAL WASHERS

Immediate Shipment from Our Warehouse Stocks

Punched Washers					
Bolt Size Inches	Outside Diameter Inches	Size Hole Inch	Thickness of Metal Inch	List Price per 100	Number Pcs. per Pound
$\frac{3}{16}$	$\frac{15}{32}$	$\frac{13}{64}$	.037	\$0.75	600
$\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{32}$	.050	1.00	270
$\frac{5}{16}$	$\frac{3}{4}$	$\frac{3}{8}$	.050	1.50	194
$\frac{3}{8}$	1	$\frac{7}{16}$	.062	2.50	100
$\frac{7}{16}$	$1\frac{1}{4}$	$\frac{1}{2}$	.062	3.50	65
$\frac{1}{2}$	$1\frac{3}{8}$	$\frac{3}{4}$	.070	5.00	30
$\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{1}{8}$	.093	10.00	20
$\frac{3}{4}$	2	$1\frac{3}{16}$	.109	17.00	12
$\frac{7}{8}$	$2\frac{3}{8}$	$1\frac{5}{16}$	.125	32.00	7
1	$2\frac{1}{2}$	$1\frac{1}{8}$	.125	37.00	6

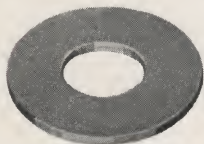


$\frac{3}{16}$ " Washer



$\frac{1}{8}$ " Washer

Plate Washers						Punched Washers					
Bolt Size Inches	Outside Diameter Inches	Size Hole Inches	Thickness U. S. Standard Inch	List Price per 100 Pcs.	Approximate Number per Pound	Screw Size	Outside Diameter Inches	Size Hole Inch	Thickness of Metal Inch	List Price per 100 Pcs.	Approximate Number per Pound
$\frac{1}{4}$	$\frac{3}{4}$	$\frac{5}{16}$	.0625	\$1.85	125	$\frac{6}{32}$	$\frac{3}{8}$	$\frac{5}{32}$	.031	\$0.65	700
$\frac{5}{16}$	$\frac{7}{8}$	$\frac{3}{8}$	.0625	2.35	100	$\frac{8}{32}$	$\frac{7}{16}$	$\frac{3}{16}$	.031	.65	650
$\frac{3}{8}$	1	$\frac{7}{16}$	.078	3.60	65	$\frac{10}{32}$	$\frac{1}{2}$	$\frac{13}{64}$	.037	.75	600
$\frac{7}{16}$	$1\frac{1}{4}$	$\frac{1}{2}$	.078	5.55	40	$\frac{10}{24}$	$\frac{1}{2}$	$\frac{13}{64}$	.037	.75	600
$\frac{1}{2}$	$1\frac{3}{8}$	$\frac{9}{16}$	.109	9.00	25	$\frac{1}{4}$ -20	$\frac{5}{8}$	$\frac{3}{32}$	.050	1.00	270
$\frac{9}{16}$	$1\frac{1}{2}$	$\frac{5}{8}$	.109	10.50	20	$\frac{5}{16}$ -18	$\frac{3}{4}$	$\frac{3}{8}$	.050	1.50	194
$\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{1}{16}$	.140	18.45	11	$\frac{3}{8}$ -18	1	$\frac{7}{16}$	.062	2.50	100
$\frac{3}{4}$	2	$1\frac{3}{16}$	.156	28.40	8	$\frac{1}{2}$ " dia.	$1\frac{1}{4}$	$\frac{1}{2}$	.062	3.50	65
$\frac{7}{8}$	$2\frac{1}{4}$	$1\frac{5}{16}$	.1718	34.20	6	$\frac{1}{2}$ " dia.	$1\frac{3}{8}$	$\frac{1}{2}$	.070	5.00	30
1	$2\frac{1}{2}$	$1\frac{1}{8}$	.1718	44.10	$4\frac{1}{2}$	$\frac{5}{8}$ " dia.	$1\frac{5}{8}$	$1\frac{1}{16}$	.093	10.00	20
$1\frac{1}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	.1718	51.60	4	$\frac{3}{4}$ " dia.	2	$1\frac{1}{8}$	.109	17.00	12
$1\frac{1}{4}$	3	$1\frac{3}{8}$	.1718	62.70	3						
$1\frac{3}{8}$	$3\frac{1}{4}$	$1\frac{1}{2}$	.1875	77.10	$2\frac{1}{2}$						
$1\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{5}{8}$	.1875	89.40	2						



$\frac{3}{8}$ " Plate Washer

Sizes Not Listed Made to Order

Discounts upon Application

PURE NICKEL WASHERS—PROMPTLY

Prices upon Application



MONEL METAL WASHERS
(Continued)

Prompt Shipment

FORGED TYPE—KNOWN AS O. G.



O. G. Type Washer

Bolt Size Inches	Dimensions—Inches					Weight Per 100 Pieces	List Price Per 100 Pieces
	Outside Diameter at Bottom Inches	Diameter of Hole Inches	Diameter of Top of Washer Inches	Thickness of Washer Inch	Thickness of Neck of Washer Inch		
1/2	2	5/8	1 1/2	3/16	3/32	14.1 lb.	\$13.20
5/8	2 1/2	3/4	1 3/4	1/4	1/8	28.0 lb.	21.00
3/4	3	7/8	2	5/16	5/32	47.9 lb.	36.40
7/8	3 1/2	1	2 1/4	3/8	3/16	76.4 lb.	57.40
1	4	1 1/8	2 3/8	7/16	7/32	111.1 lb.	82.00
1 1/8	4 1/2	1 1/4	2 5/8	7/16	7/32	138.7 lb.	102.00
1 1/4	5	1 3/8	2 7/8	1/2	1/4	195.4 lb.	140.80
1 1/2	6	1 5/8	3 1/4	5/8	5/16	340.6 lb.	245.00

MONEL METAL LOCK WASHERS

KANTILINK Type

Prompt Shipment



Size of Bolt Inches	SECTION		Approximate Weight per 1000 Pcs.	List Price per 1000 Pcs.
	Width Inch	Thickness Inch		
1/4	1/8	1/16	2 1/4 pounds	\$21.25
5/16	1/8	1/16	2 3/4 pounds	23.00
3/8	1/8	3/32	5 1/2 pounds	35.00
1/2	11/32	1/8	12 1/2 pounds	75.00
5/8	1/4	1/8	20 pounds	180.00
3/4	1/4	1/8	26 pounds	200.00

Other Sizes for Screws or Bolts made to Order if there is sufficient quantity to manufacture.

Discounts Quoted upon Application.



MONEL METAL COTTER PINS



Immediate Shipment from Our Warehouse Stocks

List Price per 1000 Pieces

Diameter	$\frac{1}{16}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "
Length	\$	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$ "	5.60	6.40	8.80					
$\frac{3}{4}$ "	7.20	8.48	12.00	19.20	27.20			
1"	8.80	10.40	14.40	23.20	32.80	54.40	84.80	
$1\frac{1}{4}$ "	10.40	12.48	17.60	27.20	38.40	64.00	99.20	
$1\frac{1}{2}$ "	12.00	14.40	20.00	31.20	44.00	73.60	113.60	168.00
$1\frac{3}{4}$ "	15.20	16.48	23.20	35.20	49.60	83.20	129.20	
2"	16.80	18.40	25.60	39.20	55.20	93.20	144.00	208.00
$2\frac{1}{4}$ "				43.20	65.20	102.40	158.00	
$2\frac{1}{2}$ "		24.80	32.00	47.20	71.20	112.00	168.80	248.00
3"			40.00	55.20	80.00	125.20	187.20	
$3\frac{1}{2}$ "							222.40	288.00
4"							257.60	328.00

Sizes not Listed can be Made to Order very Promptly.

Discounts Quoted upon Application.

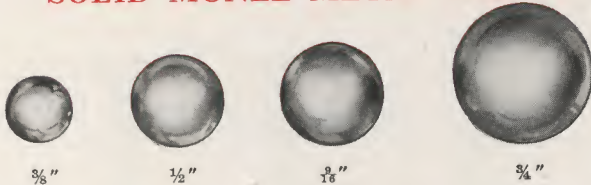
Pin measurement is from eye to point.

Assortments made up to order.

See page 203 for Brass, Bronze and other Alloys.



SOLID MONEL METAL BALLS



Immediate Shipment from Our Warehouse Stocks

List Price per 1000

Diameter Inches	Decimals Inches	Weight of Balls in Following Quantities		Price
1/8	.125	10,000	3.35 pounds	\$8.00
5/32	.156	5,000	3.24 "	9.00
3/16	.1875	5,000	5.51 "	11.00
7/32	.2187	5,000	8.65 "	13.00
1/4	.250	2,000	5.18 "	15.00
9/32	.281	2,000	7.35 "	19.00
5/16	.3125	1,000	5.08 "	25.00
11/32	.3137	1,000	6.70 "	30.00
3/8	.375	1,000	8.64 "	34.00
7/16	.4375	500	7.02 "	60.00
1/2	.500	500	10.08 "	88.00
9/16	.5625	500	14.47 "	126.00
5/8	.625	250	10.05 "	172.00
11/16	.6875	200	10.80 "	212.00
3/4	.750	200	13.60 "	252.00
13/16	.8125	150	13.49 "	336.00
7/8	.875	125	13.71 "	372.00
15/16	.9375	100	13.60 "	440.00
1	1.00	75	12.42 "	512.00
1 1/16	1.0625	65	12.85 "	610.00
1 1/8	1.125	50	11.78 "	700.00
1 3/16	1.187	45	12.52 "	900.00
1 1/4	1.25	40	12.42 "	1100.00
1 3/8	1.375	30	11.23 "	1600.00
1 7/16	1.437	25	10.90 "	1750.00
1 1/2	1.500	25	12.31 "	1900.00

Monel Metal Balls are highly resistant to corrosion and attack by heat, especially recommended in equipment coming in contact with food products. Brinnell hardness ranges from 175 to 225.

Sizes Not Listed Made to your Order. Variation in above weights must be expected in practice.

Discounts Quoted upon Application.



MONEL METAL MACHINE SCREWS



Round Head



Flat Head



Oval or French
Head



Fillister Head



Truss Head

Immediate Shipment from Our Warehouse Stocks

List Price per Gross

Diameter	2	3	4	6	8	10	10	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "
Threads per Inch	56	48	36	32	32	32	24	20	18	16
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{8}$ "	.80	.80	.90							
$\frac{3}{16}$ "	.80	.80	.90	1.15	1.75					
$\frac{1}{4}$ "	.80	.80	.90	1.15	1.75					
$\frac{5}{16}$ "	.84	.84	.94	1.22	1.85					
$\frac{3}{8}$ "	.90	.90	1.00	1.28	2.00	2.20	2.20	4.35		
$\frac{1}{2}$ "			1.10	1.45	2.25	2.50	2.50	4.80	7.50	8.65
$\frac{5}{8}$ "			1.25	1.65	2.50	2.90	2.90	5.35	8.25	9.75
$\frac{3}{4}$ "			1.40	1.85	2.65	3.30	3.30	5.70	9.00	10.05
$\frac{7}{8}$ "				2.05	3.00	3.70	3.70	6.15	9.75	11.10
1"				2.25	3.25	4.10	4.10	6.60	10.50	12.75
$1\frac{1}{8}$ "				2.60	3.60	4.40	4.40	7.10		
$1\frac{1}{4}$ "				3.00	4.00	4.70	4.70	7.35	12.00	14.85
$1\frac{1}{2}$ "				3.75	4.70	5.30	5.30	8.25	13.50	18.00
$1\frac{3}{4}$ "					5.75	6.10	6.10	9.30	15.00	20.05
2"					6.50	6.90	6.90	10.50	16.50	22.50
$2\frac{1}{4}$ "							7.70	12.00	18.00	22.15
$2\frac{1}{2}$ "							9.30	13.50	20.25	23.25
$2\frac{3}{4}$ "									22.50	25.50
3"									24.75	27.50

All sizes of Flat and Round Head carried in stock.

Oval (French) Head and Truss Head Screws are stocked in sizes $\frac{1}{4}$ " to $1\frac{1}{2}$ " long by No. 6/32, 8/32, 10/24 and $\frac{1}{4}$ "—20.

Fillister Head, also sizes not mentioned above made to order promptly.

Discounts quoted upon application. Discounts will vary depending upon Style of Head. Round Head and Oval (French) Head will cost 5% more than Flat Head. Fillister Head 10% more than Flat Head and Truss Head 25% more than Flat Head.



BRIGHT-HEXAGON HEAD MONEL METAL CAP SCREWS NEW STANDARD



*Hexagon Head



Round Head



Fillister Head



Flat Head

Rolled Thread

***Immediate Shipment from Our Warehouse Stocks**

Other Sizes Promptly

List Price per 100

Diameter of Screw	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "
Threads per Inch	20	18	16	14	13	11	10
Length	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$ "	*10.00	*11.15	*13.50	.....	.....	.....	.....
$\frac{5}{8}$ "	*10.50	*11.65	*14.00	.....	.....	.....	.....
$\frac{3}{4}$ "	*10.90	*12.15	*14.50	18.75	*23.90	.....	.....
$\frac{7}{8}$ "	*11.40	*12.50	*15.00	19.25	*24.40	.....	.....
1"	*11.75	*13.15	*15.50	*19.75	*24.90	*41.00	.....
1 $\frac{1}{4}$ "	*12.75	*14.00	*16.75	*21.25	*27.00	*41.65	66.40
1 $\frac{3}{8}$ "	13.50	14.75	17.60	.....	.....	.....	.....
1 $\frac{1}{2}$ "	*13.65	*15.00	*17.90	22.75	*28.75	*42.25	67.15
1 $\frac{3}{4}$ "	*14.75	*16.40	*19.65	*24.40	*30.90	*45.25	67.90
2"	*15.90	*17.90	*21.25	*26.15	*32.90	*47.90	68.65
2 $\frac{1}{4}$"	.....	.....	22.90	28.00	*35.15	51.00	72.50
2 $\frac{1}{2}$"	.....	.....	24.50	29.90	*37.50	53.25	76.40
2 $\frac{3}{4}$"	.....	.....	26.25	31.65	39.75	57.50	80.25
3"	.....	.....	27.90	33.50	42.50	61.40	84.25

Discounts upon application, which will vary depending upon style of Screw.
 Round Head, Flat Head and Fillister Head Cap Screws made to order promptly.
 Above sizes also furnished in Pure Nickel promptly.
 Prices upon Application.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MONEL METAL SET SCREWS



Cup Point



Headless



Round Point

Square Head—Cup Point

U. S. S. Thread

***Immediate Shipment from Our Warehouse Stocks**

List Price per 100

Diameter of Screw	$\frac{1}{4}"$	$\frac{5}{16}"$	$\frac{3}{8}"$	$\frac{7}{16}"$	$\frac{1}{2}"$	$\frac{5}{8}"$	$\frac{3}{4}"$
Threads to Inch	20	18	16	14	13	11	10
Length Inches	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$	*11.20	*12.60	*14.60				
$\frac{5}{8}$	*11.40	*12.80	*14.80	21.20	26.20		
$\frac{3}{4}$	*11.60	*13.00	*15.00	21.80	*26.60		
$\frac{7}{8}$	*12.40	*13.60	*16.00	22.20	*27.00		
1	*13.00	*14.20	*17.20	22.60	*28.20	*47.80	
$1\frac{1}{4}$	14.40	*15.60	*19.20	24.60	*30.40	*48.60	86.00
$1\frac{1}{2}$	15.80	*16.80	*21.00	26.60	*33.40	*49.40	87.60
$1\frac{3}{4}$			23.60	29.00	36.40	53.20	89.20
2			26.20	31.60	39.20	56.80	90.80
$2\frac{1}{4}$					42.40	61.20	97.20
$2\frac{1}{2}$					45.60	66.00	104.40
$2\frac{3}{4}$						70.60	111.20
3						75.40	117.40

Discounts upon Application.

Special Set Screws, Headless, Square, Bevel, Round, Dog, Hanger and Cone Point Types Made to Order.

Prices upon Application.

BRITeMARK
MONEL METAL TRAFFIC MARKERS
For Street and Industrial Plant Installation



Cross section showing general construction of the 3 1/2" BRITeMARK Monel Metal Traffic and Street Marker



Cross section showing general construction of the 2 1/2" BRITeMARK Monel Metal Traffic Marker

Britemark markers are manufactured from Monel Metal and dispense with the cost of continual painting of traffic or safety lanes in streets and industrial plants.

These markers are non-corrosive, tough and slightly domed, thereby making them free from corrosion and tarnish, and allowing complete visibility at all times.

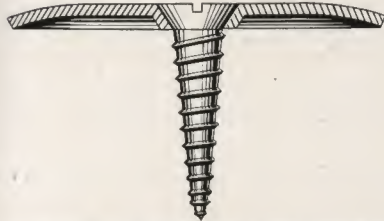
They can be installed in any type of street pavement or floor and it is not necessary to hire skilled labor for such installation.

Three sizes are manufactured and are generally used for the following purposes:

3 1/2" diameter—for streets, roads, parks or bridges.

2 1/2" diameter—are adaptable for heavy industrial plants.

The 3 1/2" and 2 1/2" markers have a malleable cast iron base, the prongs of which expand and anchor permanently when installed.



Cross section showing general construction of the 2" BRITeMARK Monel Metal Aisle Marker

2" Markers—made of solid Monel Metal and secured by Monel Metal screws inserted through the head, are particularly used in industrial plants where aisle lines and safety lanes are required.

Instructions outlining the methods of installation in all types of street and floor coverings may be had on request.

Prices Quoted upon Application.

Immediate shipment from Warehouse Stocks.



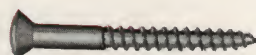
MONEL METAL WOOD SCREWS



Flat Head



Round Head



Oval Head

Immediate Shipment from Our Warehouse Stocks

List Price per Gross

Gauge	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 12	No. 14	No. 16	No. 18
Dec. Dia. Inches	.097 Inch	.1105 Inch	.1236 Inch	.1368 Inch	.150 Inch	.163 Inch	.1763 Inch	.1894 Inch	.2158 Inch	.242 Inch	.2684 Inch	.2947 Inch
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1/4"	2.50	2.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3/8"	2.75	2.85	3.00	3.25	.....	.....	.....	.....	.....	.....	.....	.....
1/2"	2.95	3.00	3.25	3.50	3.50	3.75	.....	.....	.....	.....	.....	.....
5/8"	3.15	3.25	3.50	3.90	4.10	4.25	4.30	.....	.....	.....	.....	.....
3/4"	3.40	3.50	3.75	4.25	4.35	4.50	4.80	5.30	6.50	.....	.....	.....
7/8"	.....	3.75	4.15	4.65	4.75	4.90	5.20	5.80	7.10	.....	.....	.....
1"	.....	4.00	4.50	5.00	5.25	5.40	5.75	6.30	7.80	9.50	.....	.....
1 1/4"	.....	.....	.....	5.35	5.85	5.95	6.60	7.30	9.20	11.30	.....	.....
1 1/2"	.....	.....	.....	5.95	6.35	6.50	7.50	8.40	10.70	13.10	16.20	.....
1 3/4"	.....	.....	.....	.....	.....	7.50	8.50	9.60	12.20	14.90	18.30	.....
2"	.....	.....	.....	.....	.....	8.50	9.50	10.70	13.60	16.70	20.40	.....
2 1/4"	.....	.....	.....	.....	.....	.....	.....	11.90	15.00	18.60	.....	.....
2 1/2"	.....	.....	.....	.....	.....	12.50	.....	13.20	16.50	20.50	22.60	30.00
3"	.....	.....	.....	.....	.....	.....	.....	.....	19.50	24.00	29.40	35.40
3 1/2"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35.40	41.00
4"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48.00

Flat Head—All above Sizes Carried in Stock.

Round Head—3/8" No. 3 to 2 1/2" No. 12—In Stock.

Oval Head—3/8" No. 3 to 2 1/2" No. 14—In Stock.

Discounts upon Application, which will vary depending upon Style of Head.

Sizes Not Listed Made to Order.

Pure Nickel Wood Screws are Special and can be made to order, if quantity is sufficient.

Monel Metal Finishing Washers for oval or flat head wood screws and stove bolts carried in Nos. 3 to 16 sizes, inclusive. Prices quoted upon Application. See page 210.



MONEL METAL LAG SCREWS



Square Head—Gimlet Point

Immediate Shipment from Our Warehouse Stocks

List Price per 100

Diameter of Screw	$\frac{1}{4}"$	$\frac{3}{16}"$	$\frac{3}{8}"$	$\frac{1}{2}"$	$\frac{5}{8}"$	$\frac{3}{4}"$	$\frac{7}{8}"$	1"
Length	\$	\$	\$	\$	\$	\$	\$	\$
1 $\frac{1}{2}"$	8.00	15.00	18.00	.....	.....	.....	.....	.....
2"	8.95	16.45	19.45	33.45	38.50	.....	.....	.....
2 $\frac{1}{2}"$	.....	18.00	21.00	34.50	41.15	.....	.....	.....
3"	.....	19.45	22.45	36.45	43.75	73.00	.....	.....
3 $\frac{1}{2}"$	.....	.....	24.00	38.00	46.40	.....	.....	.....
4"	.....	.....	25.40	41.00	49.00	80.95	118.10	.....
4 $\frac{1}{2}"$	.....	.....	.....	.....	52.00	.....	.....	.....
5"	.....	.....	.....	.....	54.20	88.85	129.60	193.70
6"	.....	.....	.....	.....	59.45	96.80	141.10	209.20
7"	.....	.....	.....	.....	.....	.....	224.60	318.00
8"	.....	.....	.....	.....	.....	.....	240.10	338.90
10"	.....	.....	.....	.....	.....	.....	.....	380.70

Discounts upon Application.
Sizes Not Listed Made to Order—Prompt Shipment.

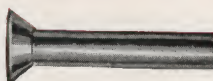
WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



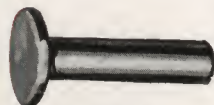
MONEL METAL RIVETS



Round Head



Countersunk Head



Flat Head

Immediate Shipment from Our Warehouse Stocks

List Price per Pound											List Price per 100			
ROUND HEAD AND COUNTERSUNK HEAD								FLAT HEAD				HOT FORGED ROUND HEAD		
Diameter	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"	1/8"	3/16"	1/4"	5/16"	1/2"	5/8"	3/4"
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
3/32"	2.50													
1/8"	2.50													
3/16"	2.00	2.00												
1/4"	2.00	2.00	1.50	1.10				1.50						
5/16"		2.00	1.50	1.10	1.10			1.50	1.25					
3/8"			1.50	1.10	1.10	1.00		1.50	1.25					
7/16"			1.25	1.10	1.10	1.00	.90	1.25	1.10	1.10				
1/2"				1.10										
9/16"			1.25	1.10	1.00	1.00	.90	1.25	1.10	1.00	1.00	13.25		
5/8"				1.10										
11/16"			1.25	1.00	.90	.90	.90	1.25	1.00	.90	.90	13.75		
3/4"				1.00										
13/16"			1.25	1.00	.90	.90	.90	1.25	1.00	.90	.90	14.25		
7/8"				1.00										
15/16"			1.25	1.00	.90	.90	.90	1.25	1.00	.90	.90	14.75		
1"				1.00										
1 1/8"			1.25	1.00	.90	.90	.90	1.25	1.00	.90	.90	15.25	22.00	
1 3/16"				1.00								15.75		
1 1/4"			1.25	1.00	.90	.85	.85			.90	.90	16.30	25.00	40.00
1 3/8"				1.00	.90	.85	.85					16.50	25.75	
1 1/2"				1.00	.90	.85	.85			.90	.85	16.80	28.20	44.10
1 5/8"				1.00	.90	.85	.85					17.75		
1 3/4"				1.00	.90	.85	.85					18.60	31.50	48.30
1 7/8"					.90	.85	.85					19.75		
2"				1.00	.90	.85	.85					20.40	34.20	52.20
2 1/4"					.85	.85	.85					22.80	36.30	56.10
2 1/2"					.85	.85	.85					24.30	39.00	60.00
2 3/4"						.85	.85					26.10	42.30	64.50
3"						.85	.85					27.90	45.00	68.40
3 1/4"						.85	.85						47.70	72.30
3 1/2"						.85	.85						50.70	76.50
3 3/4"						.85	.85						53.70	80.40
4"						.85	.85						56.40	84.30

Discounts upon Application.

Sizes not Listed made to Order.



MONEL METAL RIVETS

Flat Head Tinners'—Oval Head Braziers'—Flat Head Belt—
Brake Band Rivets—Burs



Tinners'



O. H. Braziers'



F. H. Belt



Brake Band



Bur

Immediate Shipment from Our Warehouse Stocks

List Price per Pound

TINNERS'			BRAZIERS'				FLAT HEAD BELT AND BRAKE BAND			BURS ONLY		
Diameter Inch	Lgth. Inch	Price	Size	Dia. Inch	Lgth. Inches	Price	Size	Dia. Inch	Price	Size	Approx No. Pound	Price
8 oz.	.092	$\frac{5}{32}$ \$1.50	00	$\frac{5}{32}$	$\frac{5}{16}$	\$1.25	3	.259	\$1.50	3	60	\$1.50
10 oz.	.095	$\frac{11}{64}$ 1.50	0	$\frac{3}{16}$	$\frac{3}{8}$	1.25	4	.238	1.50	4	75	1.50
12 oz.	.106	$\frac{3}{16}$ 1.50	1	$\frac{1}{4}$	$\frac{1}{2}$	1.10	5	.220	1.50	5	90	1.50
14 oz.	.109	$\frac{3}{16}$ 1.50	2	$\frac{11}{64}$	$\frac{1}{2}$	1.10	6	.203	1.50	6	185	1.50
1 lb.	.112	$\frac{13}{64}$ 1.25	3	$\frac{9}{32}$	$\frac{5}{8}$	1.00	7	.180	1.50	7	350	1.60
1¼ lb.	.120	$\frac{7}{32}$ 1.25	4	$\frac{5}{16}$	$\frac{11}{16}$	1.00	8	.165	1.55	8	409	1.60
1½ lb.	.130	$\frac{15}{64}$ 1.25	5	$\frac{23}{64}$	$\frac{3}{4}$	1.00	9	.148	1.55	9	560	1.60
1¾ lb.	.134	$\frac{1}{4}$ 1.25	6	$\frac{3}{8}$	$\frac{13}{16}$	.90	10	.134	1.60	10	770	1.70
2 lb.	.145	$\frac{17}{64}$ 1.10	7	$\frac{7}{16}$	$\frac{15}{16}$	.90	11	.120	1.70	11	930	1.80
2½ lb.	.148	$\frac{9}{32}$ 1.10	8	$\frac{17}{32}$	$1\frac{1}{8}$	.90	12	.109	1.75	12	1025	1.85
3 lb.	.160	$\frac{5}{16}$ 1.00	9	$\frac{5}{8}$	$1\frac{1}{4}$	.85	13	.095	1.80	13	1475	2.00
3½ lb.	.165	$\frac{21}{64}$ 1.00	10	$\frac{21}{32}$	$1\frac{1}{4}$	.85	14	.083	1.90	14	2050	2.25
4 lb.	.176	$\frac{11}{32}$ 1.00					15	.072	2.00	15	3400	2.50
5 lb.	.186	$\frac{3}{8}$.90					The above diameters are carried in stock in lengths of $\frac{3}{8}$ " to $1\frac{1}{2}$ ".					
6 lb.	.203	$\frac{25}{64}$.90										
7 lb.	.216	$\frac{13}{32}$.90										
8 lb.	.225	$\frac{7}{16}$.90										
10 lb.	.238	$\frac{15}{32}$.90										
12 lb.	.259	$\frac{1}{2}$.90										
14 lb.	.284	$\frac{33}{64}$.90										
16 lb.	.300	$\frac{17}{32}$.90										

Discounts Quoted upon Application.



PURE NICKEL RIVETS

Immediate Shipment from Our Warehouse Stocks

Oval Head—Countersunk Head—Flat Head—Tinnings'



Round Head



Countersunk Head



Flat Head

List Price per Pound

ROUND AND COUNTERSUNK HEAD						FLAT HEAD TINNINGS'			
Diameter	1/8"	3/16"	1/4"	5/16"	3/8"	Size	Dia.	Length	Price
Length	\$	\$	\$	\$	\$				\$
3/16"	1.85					3/4 lb	.106"	3/16"	2.00
1/4"	1.85	1.40				1 lb	.112"	13/64"	1.60
5/16"	1.85	1.40				1 1/4 lb	.120"	3/8"	1.60
3/8"	1.60	1.40	1.25			1 1/2 lb	.130"	15/64"	1.60
1/2"	1.60	1.40	1.25	1.25	1.15	1 3/4 lb	.134"	1/4"	1.60
5/8"	1.60	1.25	1.15	1.15	1.15	2 lb	.145"	17/64"	1.45
3/4"	1.60	1.25	1.15	1.15	1.15	2 1/2 lb	.148"	7/32"	1.45
7/8"	1.60	1.25	1.15	1.15	1.15	3 lb	.160"	5/16"	1.25
1"	1.60	1.25	1.15	1.15	1.15	3 1/2 lb	.165"	21/64"	1.25
1 1/4"		1.25	1.15	1.15	1.15	4 lb	.176"	11/32"	1.25
1 1/2"		1.25	1.15	1.15	1.15	5 lb	.186"	3/8"	1.15
1 3/4"			1.15	1.15	1.15	6 lb	.203"	25/64"	1.15
2"			1.15	1.15	1.15	7 lb	.216"	13/32"	1.15
						8 lb	.225"	7/16"	1.15
						10 lb	.238"	35/64"	1.15
						12 lb	.259"	1/2"	1.15

Discount upon Application.

Sizes Not Listed Made to Order. Prompt Shipment.

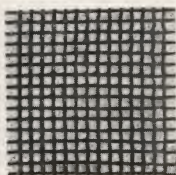
Packed in Bulk or One Pound Boxes.



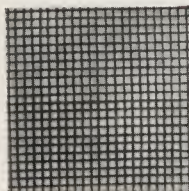
MONEL METAL WIRE CLOTH

Market Grade—All 36" Wide

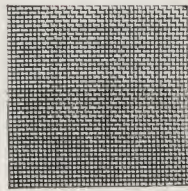
Immediate Shipment from Our Warehouse Stocks



16 Mesh—.018"



24 Mesh—.0122"



40 Mesh—.010"

Size Mesh No.	Old Eng. Gauge Wire, No.	Dia. of Wire in Inches	Approx. Opening	List Price per Square Foot	Size Mesh No.	Old Eng. Gauge Wire, No.	Dia. of Wire in Inches	Approx. Opening	List Price per Square Foot
2	16	.065	.436	\$.95	30	32	.0112	.0223	\$0.95
4	19	.040	.208	.95	40	34	.0095	.0155	1.00
6	21	.0315	.135	.95	50	36	.0075	.011	1.05
8	23	.027	.098	.95	60	37	.0065	.009	1.15
10	24	.025	.075	.95	70	38	.0055	.....	1.20
12	25	.023	.060	.95	80	39	.005	.....	1.85
14	26	.0205	.050	.95	100	40	.0045	.....	2.65
16	27	.0187	.045	.95	110	.....	.004	.....	3.00
18	28	.0165	.038	.95	120	.....	.0037	.....	3.50
20	29	.0155	.033	.95	150	.....	.0026	.....	4.50
24	31	.0122	.0297	.95	200	.....	.0021	.....	6.50

Other Meshes Made to your Order Promptly.
Discounts upon Request.

MONEL METAL INSECT SCREEN

Immediate Shipment from Our Warehouse Stocks

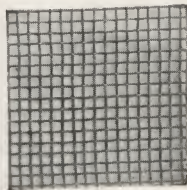
Widths: 18" to 48"—Every Two Inches
Meshes: No. 16 and No. 18

Gauge of Wire: No. 35 Old English—.009"

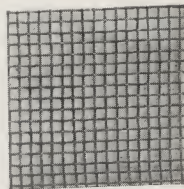
No. 33 Gauge Wire—.010"

And Other Meshes Made to Order Promptly

Prices Quoted upon Application



16 Mesh—.009"



16 Mesh—.009"

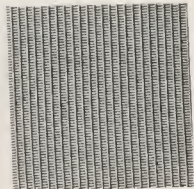
FILTER CLOTH

DUTCH—PLAIN AND TWILLED WEAVES

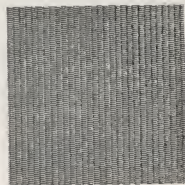
Promptly From Mill

Pure Nickel Cloth Made to Order.

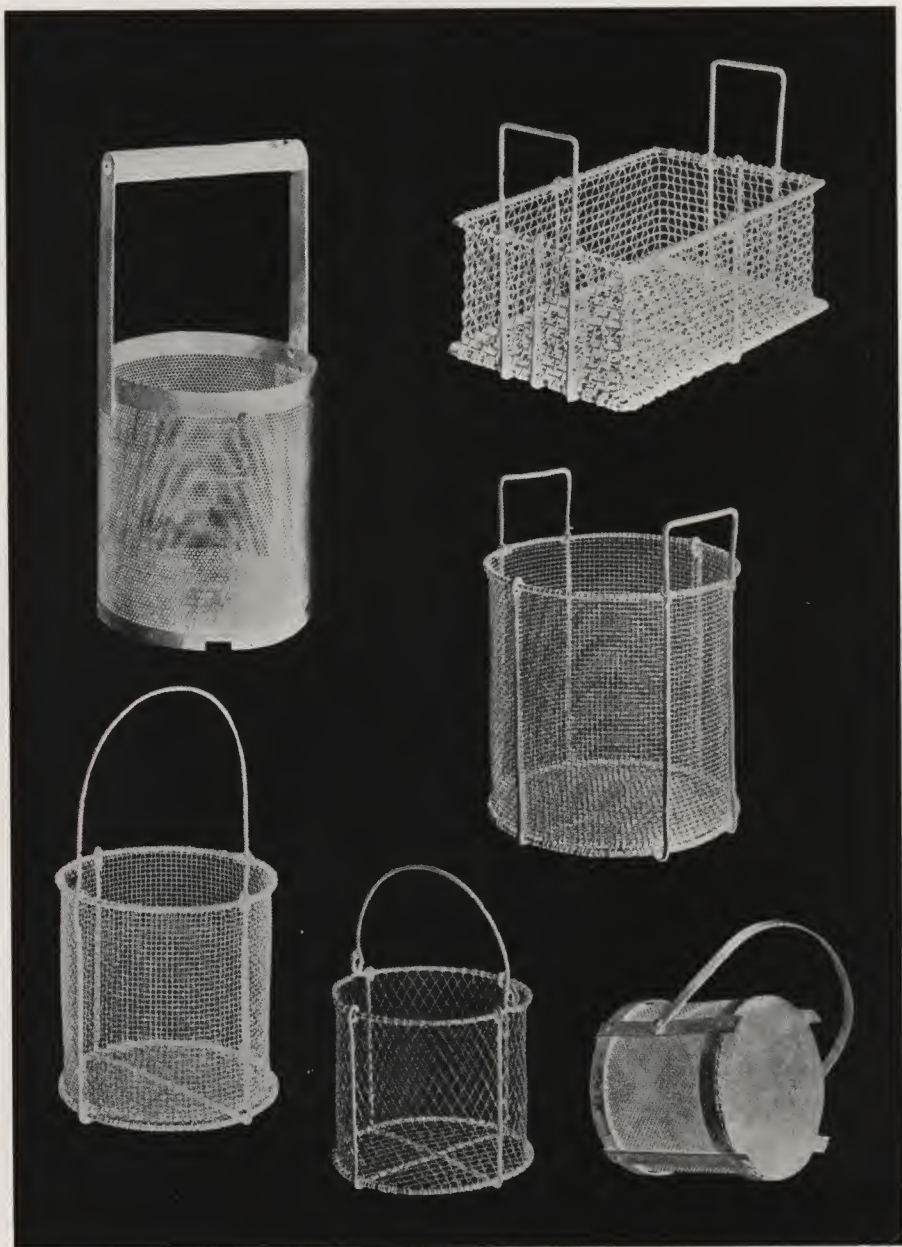
Prices Quoted upon Application.



24 x 110
Dutch Weave



30 x 150 Mesh
Twilled Dutch Weave



SOME OF THE STYLES OF DIPPING BASKETS WE ARE PREPARED TO SUPPLY. OUR ENGINEERS ARE GLAD TO HELP IN THE SELECTION OF THE PROPER CLOTH TO SUIT YOUR REQUIREMENTS



SPECIAL SCREEN WIRE PARTS

DIPPING BASKETS

Monel Metal, Nickel Chromium Brass and Copper

For most of the commercial acids including nitric and hydrochloric, dilute, concentrated, cold or boiling, we recommend Nickel Chromium baskets. Nickel Chromium is the most highly resistant metal to the action of these acids, and while the initial cost is relatively high, yet the wearing qualities are so much greater that these baskets are having a large sale for use in such pickling solutions.

Monel Metal resists brine solution, both dilute and concentrated, and many of the commercial acids. It is stronger than steel. We do not recommend it, however, for use in nitric acid, unless quite dilute.

As compared with earthenware baskets, Wire Baskets not only eliminate breakage but also effect a big saving in the acid. They carry over only a small percentage of the acid wasted by the earthenware baskets.

We can supply any style of basket on receipt of specifications and ship promptly. We carry out your ideas for the basket suited to your work.

When ordering state clearly—The Style—Dimensions (whether inside or outside measure). If with handle—Style and Height of handle—Size of Wire and Mesh, or Space.

WIRE GUARDS

Brass, Copper, Monel Metal and Iron WITH OR WITHOUT ROUND OR CHANNEL FRAMES

For Basement and Factory Windows, exposed Elevator Shafts and Railings, Protective Covers for Machines with exposed moving parts, and Safety Guards in general made to suit particular installations. It is usually preferable to have a frame work of wood or metal constructed on the premises and to order a suitable wire cloth cut to the exact shapes and sizes required.

BRASS WIRE RIDDLES AND SIEVES

For Gravel, Sand, Corn, Wheat, Rye, Barley, Mortar, Putty. Also for Brickmakers' and Bakers' use.

FRAMED WIRE CLOTH SCREENS

Used for screening Coal, Sand, Gravel, Cinders and a great variety of other substances.

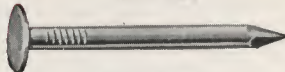
Prices Quoted upon Receipt of Specifications



MONEL METAL NAILS



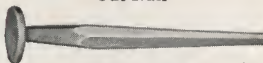
Wire Nail



Slating Nail



Cut Nail



Cut Slating Nail



Wire Brad

Common Wire—Slating—Cut—Brads—Sheathing

Immediate Shipment from Our Warehouse Stocks

List Price per Pound

Size Inches	Penny	GAUGE USED FOR WIRE SLATING AND BRADS			WIRE & SLATING		CUT & SHEATHING		BRADS
		Gauge Stubs	Dec. Inch	No. of Pieces Per Pound Wire Nails only	Price	STYLE	Price	STYLE	Price
$\frac{5}{8}$	.....	16	.065	1400	\$1.25	Wire	.....	.....	.....
$\frac{3}{4}$	.....	16	.065	950	1.25	Wire	1.10	Cut-Shea.	\$1.50
$\frac{7}{8}$	.....	16	.065	825	1.25	Wire	1.10	Cut-Shea.	1.50
1	2d	15	.072	775	1.10	Wire	1.10	Cut-Shea.	1.50
1	2d	12	.109	250	1.10	Slating	.....	.....	.....
$1\frac{1}{4}$	3d	14	.083	525	1.00	Wire	1.00	Cut-Shea.	1.25
$1\frac{1}{4}$	3d	11	.120	195	1.00	Slating	.....	.....	.....
$1\frac{1}{2}$	4d	13	.095	275	.90	Wire	1.00	Cut	.....
$1\frac{1}{2}$	4d	10	.134	150	.90	Slating	.....	.....	.....
$1\frac{3}{4}$	5d	13	.095	200	.90	Wire	1.00	Cut	.....
2	6d	12	.109	175	.90	Wire	1.00	Cut	.....
2	6d	10	.134	100	.90	Slating	.....	.....	.....
$2\frac{1}{4}$	7d	11	.120	135	.90	Wire	1.00	Cut	.....
$2\frac{1}{2}$	8d	11	.120	85	.85	Wire	.90	Cut	.....
3	10d	9	.148	50	.85	Wire	.90	Cut	.....
$3\frac{1}{4}$	12d	9	.148	35	.85	Wire	.90	Cut	.....
$3\frac{1}{2}$	16d	8	.165	25	.85	Wire	.90	Cut	.....
4	20d	6	.203	20	.85	Wire	.90	Cut	.....
$4\frac{1}{2}$	30d	5	.220	18	.85	Wire	.....	.....	.....
5	40d	4	.238	15	.85	Wire	.....	.....	.....
6	60d	2	.284	8	.85	Wire	.....	.....	.....

Discounts upon Application.

Sizes Not Listed made to Order, if Quantity Warrants Manufacture.



MONEL METAL TACKS AND PINS



Flat Head Tack



Esc. Pin



Wire Staple

CUT TACKS ESCUTCHEON PINS WIRE STAPLES

Immediate Shipment from Our Warehouse Stocks

Packed in 1 lb. Boxes

TACKS			ESCUTCHEON PINS			WIRE STAPLES		
Length Inches	Price Flat Head	List Price Oval Head	Length Inches	Gauge BWG	List Price per Pound	Length Inch	Gauge BWG	List Price per Pound
* $\frac{1}{8}$	\$3.00	.....	$\frac{3}{16}$	18	\$3.00	** $\frac{1}{4}$	20	\$2.50
* $\frac{3}{16}$	2.00	.....	$\frac{3}{16}$	20	3.00	** $\frac{1}{4}$	18	2.00
$\frac{1}{4}$	2.00	.....	$\frac{1}{4}$	16	2.50	** $\frac{5}{16}$	18	1.75
* $\frac{5}{16}$	2.00	.....	$\frac{1}{4}$	18	2.50	$\frac{3}{8}$	18	1.50
$\frac{3}{8}$	1.50	1.50	$\frac{5}{16}$	16	2.00	$\frac{3}{8}$	16	1.25
$\frac{7}{16}$	1.50	.....	$\frac{1}{2}$	18	2.00	$\frac{1}{2}$	18	1.50
$\frac{1}{2}$	1.25	1.25	$\frac{3}{8}$	18	2.00	$\frac{1}{2}$	16	1.25
$\frac{9}{16}$	1.25	.....	$\frac{3}{8}$	16	1.75	$\frac{5}{8}$	18	1.50
$\frac{5}{8}$	1.25	1.25	$\frac{1}{2}$	18	1.50	$\frac{5}{8}$	16	1.25
$\frac{3}{4}$	1.10	1.10	$\frac{1}{2}$	16	1.50	$\frac{5}{8}$	14	1.10
$\frac{7}{8}$	1.10	1.10	$\frac{1}{2}$	14	1.25	$\frac{3}{4}$	16	1.10
1	1.10	1.10	$\frac{5}{8}$	18	1.50	$\frac{3}{4}$	14	1.10
$1\frac{1}{8}$	1.00	.....	$\frac{5}{8}$	16	1.50	$\frac{3}{4}$	13	1.00
$1\frac{1}{4}$	1.00	.....	$\frac{5}{8}$	14	1.25	$\frac{7}{8}$	16	1.10
			$\frac{3}{4}$	16	1.25	$\frac{7}{8}$	14	1.00
			$\frac{3}{4}$	14	1.10	$\frac{7}{8}$	13	1.00
			$\frac{3}{4}$	13	1.00	1	13	1.00
			$\frac{7}{8}$	16	1.10	1	11	1.00
			$\frac{7}{8}$	14	1.00			
			$\frac{7}{8}$	13	1.00			
			1	16	1.10			
			1	14	1.00			
			1	13	1.00			
			1	11	1.00			
			$1\frac{1}{4}$	12	1.00			
			$1\frac{1}{4}$	10	1.00			

* $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{5}{16}$ " sizes are not stock, but can be made to order promptly if quantity is enough to make.

** $\frac{1}{4}$ " and $\frac{5}{16}$ " sizes are not stock, but can be made to order promptly if quantity is enough to make.

Discounts upon Application.

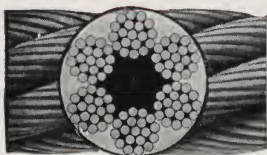
Other sizes made to order, if quantity warrants manufacture.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

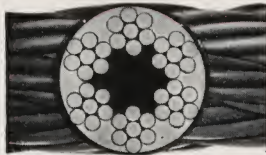


MONEL METAL WIRE ROPE—SASH CORD—TILLER ROPE

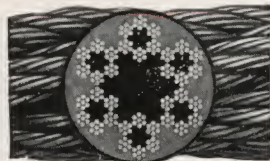
Immediate Shipment from Our Warehouse Stocks



6 x 19 Construction
(Cable)



6 x 7 Construction
(Sash Cord)



6 x 6 x 7 Construction
(Tiller Rope)

MONEL METAL WIRE ROPE

Composed of 6 Strands of 19 Wires Each with Hemp Center (6 x 19)

Diameter in Inches	List Price per Foot	Cir. in Inches	Approx. Weight per Foot	Dia. of Drum or Sheave in Feet Advised	Approx. Strength in Tons, 2000 Lbs.	Proper Working Load in Tons of 2000 Lbs.
$\frac{3}{16}$	\$.16	$\frac{1}{2}$	.065	1.25	.9	.18
$\frac{1}{4}$	.18	$\frac{3}{4}$	.115	1.50	1.5	.30
$\frac{5}{16}$	.22	1	.160	2.00	2.4	.48
$\frac{3}{8}$	.29	$1\frac{1}{8}$	.235	2.25	3.5	.70
$\frac{1}{2}$	.39	$1\frac{1}{2}$	.420	3.00	6.2	1.2
$\frac{5}{8}$	.55	2	.670	4	9.7	1.9
$\frac{3}{4}$	.83	$2\frac{1}{4}$	.960	4.5	13.9	2.8

MONEL METAL SASH CORD

Composed of 6 Strands of 7 Wires Each with Hemp Center (6 x 7)

Diameter in Inches	List Price per Foot	Cir. in Inches	Approx. Weight per Foot	Dia. of Drum or Sheave in Feet Advised	Approx. Strength in Tons, 2000 Lbs.	Proper Working Load in Tons of 2000 Lbs.
$\frac{1}{16}$	\$.03	$\frac{1}{8}$	.077	.5	.100	.020
$\frac{1}{8}$	.035	$\frac{1}{4}$	.015	.6	.225	.045
$\frac{1}{4}$	.05	$\frac{3}{8}$	.029	.75	.400	.080
$\frac{5}{16}$	.07	$\frac{1}{2}$	.043	.90	.660	.132
$\frac{3}{8}$	.09	$\frac{5}{8}$	.065	1.00	.900	.180
$\frac{1}{2}$	.11	$\frac{3}{4}$	.085	1.25	1.260	.252
$\frac{3}{4}$	.15	$\frac{7}{8}$	.115	1.50	1.600	.320

MONEL METAL TILLER ROPE

Composed of 6 Individual Ropes Laid Around a Hemp Center 6 x 7 (252 Wires)

Diameter in Inches	List Price per Foot	Cir. in Inches	Approx. Weight per Foot	Dia. of Drum or Sheave in Feet Advised	Approx. Strength in Tons, 2000 Lbs.	Proper Working Load in Tons of 2000 Lbs.
$\frac{1}{4}$	\$.21	$\frac{3}{4}$	.075	6	1.0	.20
$\frac{5}{16}$	.25	1	.115	$7\frac{1}{2}$	1.5	.30
$\frac{3}{8}$	.31	$1\frac{1}{8}$	.175	9	2.2	.44
$\frac{1}{2}$	.35	$1\frac{1}{4}$	.23	$10\frac{1}{2}$	3.0	.60
$\frac{5}{8}$	.42	$1\frac{1}{2}$	.30	12	3.9	.78
$\frac{3}{4}$	.50	$1\frac{3}{4}$	.38	$13\frac{1}{2}$	5.0	1.00
$\frac{7}{8}$	.63	2	.46	15	6.1	1.22
$\frac{1}{2}$	.85	$2\frac{1}{4}$	.67	18	7.7	1.54

Ropes with Wire Center add 20% to List. Made to Order.

Discounts upon Application.

Sizes Not Listed Made to Order, if Quantity Sufficient to Make-up.

Other Sizes or Constructions and Ropes with Wire Center Made to Order Promptly.



**MISCELLANEOUS INCO MONEL METAL ACCESSORIES
AND SPECIAL MATERIALS**

Made to Order Promptly

"U" BOLTS	SPECIAL NUTS	THUMB SCREWS
EYE BOLTS	ACORN NUTS	SPECIAL SCREWS
SINK BOLTS	CAP NUTS	TERMINAL SCREWS
COLLAR BOLTS	LOCK NUTS	EYE SCREWS
TAP BOLTS	SLOTTED NUTS	THREADED RODS
TAPER PINS	CASTELLATED	THREADED WIRE
SPECIAL RIVETS	NUTS	SPRINGS
MILLED-SCREW-	CHECK NUTS	SPECIAL WASHERS
MACHINE	WIRE ROPE SLINGS	DIPPING BASKETS
PRODUCTS	SPECIAL NAILS	

HINGES AND BUTTS

Narrow—Middle—Broad

and for

SHUTTERS AND SCREENS

also

CONTINUOUS HINGES

in Standard Sizes or to Order

**TAGS—CHECKS—CHAIN—GASKETS—PIPE STRAPS
PERFORATED METALS**

KICK PLATES

PUSH PLATES

**POLISHED—BEVELED AND DRILLED
WITH SCREWS**

**Other Types of Accessories not mentioned above can be Made to Order upon
receipt of your Specifications and Blue Prints**

ESTIMATES UPON REQUEST

**ABOVE ITEMS ALSO MADE OF BRASS, BRONZE
AND OTHER NON-FERROUS ALLOYS
ALSO OF PURE NICKEL**

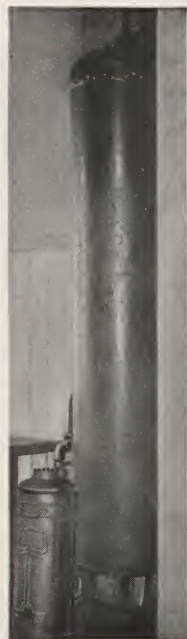
Promptly from Mill. Prices upon Application

THERE IS NO RUST TROUBLE WHEN YOU USE COPPER AND BRASS

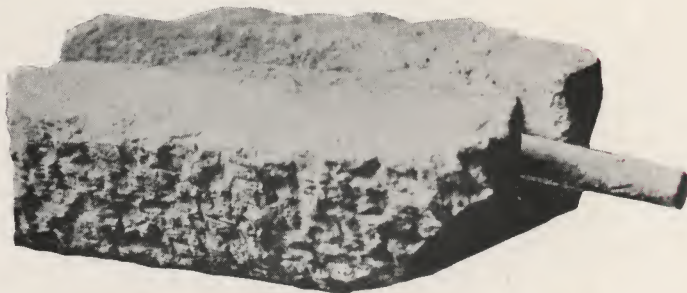
A FEW years before the Civil War a family in Chicago installed a copper tank for hot water in the home which they had just built. More than seventy years have passed now, but the present generation is still using that same tank and they never have cause for complaint about hot water discolored with rust. The fact is that the water cannot acquire that ugly reddish color because it does not come into contact with any rusty parts. The copper tank is rustproof.

Corrodible tanks and boilers will rust sooner or later. When corrosion sets in you know it without even looking at the inside of the tank. The service shows a marked decline from what the installation gave when it was new. Discoloration of the water supply is the formal notice that rust gives when it takes possession of ferrous metal. The proper way to assure a supply of clean hot water all the time is to use copper for boilers and tanks. All of the parts that go with this equipment should also be rustproof copper, brass or bronze.

As an outstanding example of the durability of copper, there is included here a photograph of a section of copper pipe which has lasted about 54 centuries. It was discovered in Egypt a few years ago at Ghizeh, near the tomb of the Egyptian King Sahoure. In spite of the lapse of 5400 years the pipe is still as sound as it was when it carried water in the world's earliest civilization.



COPPER RANGE
BOILER 70 YEARS
IN USE



SECTION OF COPPER WATER PIPE OVER 5000 YEARS OLD



GENERAL INFORMATION PERTAINING TO BRASS AND BRONZE

COMPOSITION

Brass is an alloy of copper and zinc in which the proportions may vary greatly. In some the copper content is as high as 95% and Zinc 5%, while others are composed of 58% copper and 42% zinc. Between these extremes there is a wide variety of mixtures. Consequently they vary in color from a copper red, to golden and to yellow as the copper content decreases. This variation in composition also affects the strength, ductility and hardness.

Brass can be made soft and ductile by giving it a suitable annealing treatment; it can be given various degrees of hardness by regulating its final reduction by rolling or drawing; and it can be made free-cutting by adding a small amount of lead.

CLASSIFICATION OF BRASS MILL ALLOYS

A brief description is given below of the most common alloys used in the industry:

Yellow (High) Brass—Contains about 65% Copper, .06% Iron maximum, .35% Lead maximum, and the balance zinc. Bright yellow, very ductile. Good for ordinary drawing operations.

Extra Quality High Brass—Contains approximately 67% Copper, .10% Lead maximum, .06% Iron maximum, and balance Zinc, bright yellow. Very ductile and made from best quality raw materials. Recommended for unusually deep drawing, for spinning and for good quality springs.

Best Quality High Brass—This is sometimes known as cartridge Brass and contains approximately 68% Copper, .06% Lead maximum, .05% Iron maximum and balance Zinc. Bright yellow, very ductile. Used for articles which require exceptionally deep drawing such as eyelets. Also for cartridge cases, which must withstand the effects of shock.

Red (Low) Brass, 80%—Contains approximately 80% Copper and 20% Zinc. Light golden color, very ductile. Used in the manufacture of band instruments and for wire cloth for paper mills, also where its golden color is desirable.

Red Brass, 85% (Rich Low)—Contains approximately 85% Copper and 15% Zinc. Fine golden color, very ductile. Used for imitation gold jewelry and for articles where a golden color is desirable.

Commercial Bronze, 90%—Contains about 90% Copper and 10% Zinc. Red golden color, very ductile. Used for bullet jackets also for articles exposed to the weather. Resist corrosion and season cracking better than ordinary brass.

Commercial Bronze, 95%—Formerly known as gilding metal.

Nickel Silver—Formerly called German Silver, is a brass to which a certain amount of Nickel has been added. Nickel whitens brass—the more nickel, the whiter the alloy. It is composed of about 60 to 65% Copper, 5 to 30% Nickel and the balance of the mixture Zinc, depending upon the quality designated. It is not quite so soft and ductile as brass. Yet, it may be worked with tools and spun in practically the same manner. The grain is of a very fine and dense structure enabling the metal to take and retain a high polish under varied conditions.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



Tobin Bronze—This is a composition of Copper, Tin and Zinc of the following proportions: Content of approximately 59 to 62% Copper, $\frac{1}{2}$ to $1\frac{1}{2}$ % Tin and the balance Zinc. It combines the remarkable qualities of great Tensile Strength, High Elastic Limit, Toughness and Density of Texture. Because of the special process by which it is wrought and its non-corrosive nature, it is adaptable for Condenser Plates, Boat Shafting, Pump Pistons, Hull Plates, Bolts and Rivets.

Yellow (Muntz) Metal—Can be had in such forms as Rods, Tube Sheets, Circles, Segments, Bolts, Nails, etc. It can be forged, stamped and dropforged and when rolled hot possesses greater strength, toughness and texture than mild steel. Its constituents are: Copper 60%, Zinc 40%.

Manganese Bronze—An alloy of Copper, Tin, Zinc deoxidized by means of manganese, is readily rolled or forged at a hot heat, producing a tough, dense and close grained metal. Shafts, Pump Rods, Bolts and Nuts, Valve Stems and Axles made from this material are of high value from an engineering standpoint because of resistance to vibration, sudden stress and shock.

Naval Bronze—Is made to comply with U. S. Navy specifications, and has many of the characteristics of Tobin Bronze. Frequently used for making Bolts, Studs, Nuts, Turnbuckles, air pump and condenser parts, Sheets, Supporting plates etc., because of its resistance to the action of salt water.

HOW BRASS IS MADE FREE CUTTING

In brasses designed for extra deep drawing and for springs, the presence of lead is undesirable because it has a tendency to make the brass brittle. Lead does not alloy with brass, bronze, copper or nickel silver, but exists as separate minute particles of free lead scattered throughout the alloy. Lead makes brass free cutting if it exists in amounts over $\frac{1}{2}$ % and is therefore added intentionally for that purpose. Leaded brasses carry from $\frac{1}{2}$ % to 3% of lead depending on the degree of free cutting qualities desired.

When a cutting tool digs into leaded brass, it soon meets a particle of free lead which breaks up the brass chip and at the same time acts as a sort of lubricant, keeping the cutting tool free and cool. Since not only rod but also sheet metal can be furnished with lead, it will be seen that considerable saving in labor can be effected on articles which are to be drilled or tapped when the correct mixture is used.

TEMPER OR DEGREES OF HARDNESS

When metal is cold rolled or drawn, it increases in hardness in proportion to the percentage of reduction. Manifestly, however, as the Brinnell or scleroscopic hardness and tensile strength increases, the percentage of elongation falls off. For some purposes such as clock wheels, springs, etc., where a stiff brass is required, this condition is obtained by hardening the brass by rolling.

The following standards for hard rolled metals advocated by the American Society for Testing Materials have been universally adopted by the brass industry for yellow brass in ordinary thicknesses:

Temper	B. & S. Numbers Reduction
Half Hard	= 2 numbers hard
Hard	= 4 numbers hard
Extra Hard	= 6 numbers hard
Spring	= 8 numbers hard



ROLLING PRACTICE

In order to simplify matters, the Rolling and Wire mills reduce the metal in steps of B & S numbers. For example: if metal on .050" gauge extra hard temper is required, refer to table of B & S gauge numbers and their decimal parts of an inch. You will note .050" is equal to 16 B & S, while the term "extra hard" corresponds to a reduction of six numbers B & S. The mill, therefore, takes metal of No. 10 gauge, anneals it, then rolls it, (without intermediate annealing) to No. 16 B & S gauge. In this way they have rolled it six numbers hard finishing on No. 16 or .050".

TEMPER CHART

Tempers	Approx. Scleroscope Hardness	B & S Nos. Hard	Typical Uses
Soft			
Drawing Anneal			Maximum drawing qualities. Not recommended for work requiring subsequent buffing.
Drawing Anneal			Moderate drawing. Fair surface.
Light Anneal			For bending and light drawing. Gives easily buffed surface.
Quarter Hard	19	1	For "Set" bending and forming.
Half Hard	25	2	Will set and bend well with very slight spring.
Three Quarters Hard	29	3	
Hard	33	4	For flat work. Considerable stiffness. Medium spring.
Extra Hard	37	6	
Spring	40	8	For work requiring resiliency.

Note: Hardness numbers above are average values, and vary with brass mixture used.

SHEET METAL TOLERANCES

Owing to the spring of the rolls and slight differences in temper of the metal a certain overall tolerance must be expected in specifying sheet brass of a given gauge. Again as



metal flows transversally as well as longitudinally in the direction of rolling a variation of thickness will be encountered between the edge and center of the sheet. This tendency can be counteracted to some extent by carefully shaping the rolls, but extremely close tolerances can only be obtained at considerable extra expense.

ANNEALING OR DEGREES OF SOFTNESS

At intervals during the process of cold working brass, bronze or nickel silver, the material must be annealed. By this means the metal is again rendered soft and ductile. The softness of the metal can be varied by controlling the temperature of the anneal and time of exposure in relation to percentage of reduction.

Under the microscope the annealed metal appears to be made up of crystals or irregularly shaped blocks. Upon rolling or drawing, slipping takes place within and between the crystals. The crystals themselves become elongated in the direction of the rolling or drawing. The elongated crystals characteristic of hard brass are replaced by a new arrangement of crystals which grow in size as the temperature rises.

KEEP YOUR METAL CLEAN

You would never think of filling your engine with dirty gritty oil because you know that grit has a tendency to scratch and score the bearings and wears the moving parts. Using a dirty lubricant on brass for drawing or forming causes a similar trouble because it scratches the cups or shells and wears the tools excessively. As a rule, a lubricant starts off clean, but becomes contaminated from brass which picks up dirt.

When coiled sheet brass leaves the mill it is clean. It has been pickled (immersed in dilute acid) to remove the scale or oxides resulting from annealing. This has been followed by a washing in running cold water and then in hot water. Finally it has been thoroughly dried out, brushed, sheared, inspected and tightly coiled. Now, if it is stored under good conditions the inside of the coil should remain clean and bright for a long time, although the outside may tarnish somewhat. However, when brass is stored on the floor near machinery it gathers dust, dirt, grit and oil which lead to the troubles before mentioned.

When brass is allowed to become wet, it soon stains and tarnishes and, if it is later annealed and pickled, it turns red in spots. Red, spotty metal is hard to polish and nickel plate satisfactory unless the red spots are buffed off. Aside from tarnish and grit, thin brass may be seriously injured on the edges and may become badly dented if it is not handled with care.

The best practice, therefore, is to store metal in a dry clean place, preferably on a wooden floor since concrete floors generally give off grit, and to keep it covered if possible until it is to be used.

ANACONDA SHEET METAL

ROLLS	ENGRAVERS'	CIRCLES
SHEETS	ETCHING	SEGMENTS
COILS	PLATERS'	EMBOSSSED
	<i>and</i>	STRIPS

YELLOW (HIGH) BRASS
RED (LOW) BRASS (80%)
RED (RICH LOW) BRASS (85%)
COPPER
COMMERCIAL BRONZE (90%)
GILDING METAL
(COMMERCIAL BRONZE 95%)
TOBIN BRONZE*
NAVAL BRASS
YELLOW (MUNTZ) METAL
MANGANESE BRONZE
NICKEL (GERMAN) SILVER
PHOSPHOR BRONZE
AMBRAC*
SPECIAL BRONZES

*Trade-Mark Reg. U. S. Pat. Office.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MEMORANDA

BASE PRICES

ANACONDA SHEET METAL

MATERIAL	Date	Date	Date	Date	Date	Date	Date	Date
Yellow (High) Brass								
Best Spring Brass								
Best Draw. & Spg. Brass								
Red (Low) Brass (80%)								
Red (Rich Low) Brass (85%)								
Commerical Bronze (90%)								
Gilding Metal (95% Comm. Bronze)								
Tobin Bronze*								
Copper Sheet								
Copper (in rolls)								
Economy Strip Copper								
Spring & Brush Copper								
Copper Anodes (untrim.)								
Naval Bronze								
Yellow (Muntz) Metal								
Yellow Metal Sheathing								
Manganese Bronze								
Phosphor Bronze								
Grade "A" 5%								
Grade "B" 8%								
Grade "C" 10%								
Nickel (German) Silver								
Grade 5%								
Grade 10%								
Grade 15%								
Grade 18%								
Grade 25%								
Pure Tin (Sheet)								
Ambrac*								

Base Prices will be quoted upon application.

*Trade-Mark Reg. U. S. Pat. Office.



SMALL QUANTITY EXTRAS

BRASS, COPPER, BRONZE AND NICKEL SILVER MATERIALS		
	From Mill	From Stock
Items less than 200 pounds to and including 100 pounds.	Not less than	2¢ Net extra per pound.
Items less than 100 pounds to and including 75 pounds.	Not less than	3¢ Net extra per pound.
Items less than 75 pounds to and including 50 pounds.	Not less than	5¢ Net extra per pound.
Items less than 50 pounds to and including 25 pounds.	Not less than	10¢ Net extra per pound
Items less than 25 pounds. Depending upon quantity.	Extras upon application.	

SEAMLESS TUBES, ANGLES AND CHANNELS		
	From Mill	From Stock
Items less than 200 pounds to and including 100 pounds.	Not less than	3¢ Net extra per pound.
Items less than 100 pounds to and including 75 pounds.	Not less than	6¢ Net extra per pound.
Items less than 75 pounds to and including 50 pounds.	Not less than	9¢ Net extra per pound.
Items less than 50 pounds to and including 25 pounds.	Not less than	15¢ Net extra per pound.
Items less than 25 pounds. Depending upon quantity.	Extras upon application.	

In addition to the above Small Lot Extras all Seamless Tubes (except Standard Pipe) of sizes over 4 inches diameter ordered in items of less than 200 pounds will take double the extras (net, not subject to discount) listed for size, gauge, etc.

The extras herewith do not apply to Standard Pipe or to Brass and Tobin Bronze Rods of Standard dimensions.

Welding Rods, Commutator Copper and Copper Wire from Mill take special small quantity extras.

The following additional charges will be made for packages having a surface capacity of more than 8 square feet and holding less than 100 pounds of metal.

Cases, 17¢ per square foot capacity. Crates, 10¢ per square foot capacity.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA SHEET METAL

YELLOW (HIGH) BRASS

RED (LOW) BRASS

COMMERCIAL BRONZE

GILDING METAL

Sheet—Rolls—Strip

Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

Wider than and including	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
No. 20	.0319	6	2	1	Base	2	3	5	7	9	11	14	17	20	24	28	30
21	.0284	6½	2½	1½	1	2½	4	6	8	10	12	15	18	21	25	29	34
22	.0253	6½	2½	1½	1	2½	4	6	8	10	12	15	18	21	25	29	34
23	.0225	7	3	2	1	3	5	7	9	11	13	16	19	22	26	30	35
24	.0201	7	3	2	1	3	5	7	9	11	13	16	19	22	26	30	35
25	.0179	7½	3½	2½	1½	4	6	8	10	12	14	17	20	23			
26	.0159	7½	3½	2½	1½	4	6	8	10	12	14	17	20	23			
27	.0142	8	4	3	2	5	7	9	11	13	15	18					
28	.0126	8	4	3	2	5	7	9	11	13	15	18					
29	.0112	14½	5½	4	2½	6	8	10	12	14							
30	.0100	14½	5½	4	2½	6	8	10	12	14							
31	.0089	15	6	4½	3	7	9										
32	.0079	16	7	5½	4	8	10										
33	.0071	23	11	8	5	7	9										
34	.0063	26	14	11	8	10	12										
35	.0056	29	17	14	11	14											
36	.0050	32	20	17	14	18											

Brown & Sharpe's Gauge the Standard

Sheet Metal wider than ½ in., thicker than No. 20; also widths over ¼ in. to ½ in. wide inc., No. 16 to and inc. No. 19, priced the same as No. 20.

Sheet Metal wider than ¼ in. to ½ in. inc., No. 8 to inc. No. 15—2c. advance over price of No. 20.

Sheet Metal, thicker, thinner or wider than listed above, prices quoted upon application.

All metal heavier than No. 4, listed and charged as Sawed Metal, whether sheared, slit or sawed.

Metal between gauges takes price of nearest gauge.

Circles cut from above metal, prices quoted upon application.

Segments, Pattern Sheets and Irregular Shaped Blanks, prices quoted upon application.

Embossed Metal not less than 4c. advance.

Polished Sheets, prices quoted upon application.

Strip Metal furnished with Rolled Round or Square Edges, prices quoted upon application.

Drawn Strip 4c. advance.

Extra charges for items of less than 200 lbs., see page No. 99.

For lists of Standard Sizes, see pages 102 to 108.



CUTTING TO UNIFORM SPECIFIC LENGTHS

Brown & Sharpe's Gauge the Standard

Extras over Price of Sheet Metal of Corresponding Width and Gauge, Cents per Pound						
Width Inches	Length Feet	Inc. No. 20 (.0319) and thicker	Inc. No. 21 (.0284) Inc. No. 25 (.0179)	Inc. No. 26 (.0159) Inc. No. 30 (.0100)	Inc. No. 31 (.0089) Inc. No. 35 (.0056)	Inc. No. 36 (.0050) Inc. No. 38 (.0039)
Over ¼ to ½ inc.	Inc. 2 to 6 Inc.....	4	5	7	10	20
	Over 6 to 8 Inc.....	6	7	9	12	22
	Over 8 to 10 Inc.....	8	9	11	14	24
Over ½ to 2 inc.	Inc. 2 to 6 Inc.....	2	3	4	6	10
	Over 6 to 8 Inc.....	4	5	6	8	12
	Over 8 to 10 Inc.....	6	7	8	10	14
Over 2 to 18 inc.	Inc. 2 to 6 Inc.....	1	2	3	4	..
	Over 6 to 8 Inc.....	3	4	5	6	..
	Over 8 to 10 Inc.....	5	6	7	8	..

Cutting to length, other than noted above, prices quoted upon application.
No Sheet Metal thinner than No. 20, 2 in. wide and narrower or of any thickness ½ in. wide and narrower, furnished in flat random lengths, without extra charge for cutting and straightening.

EXTRAS FOR SAWING

Brown & Sharpe's Gauge the Standard

Extras Over Price of Sheet Metal of Corresponding Width, Cents per Pound					
To and including	Over	6 in. 40 in.	2 in. 6 in.	¾ in. 2 in.	¼ in. ¾ in.
		2	4	6	10

Sawed Metal cut to uniform specific lengths, add the following advances:

Inc. 1 in. to 2 in.	Inc. 2 in. to 4 in.	Inc. 4 in. to 6 in.	Inc. 6 in. to 9 in.	Inc. 9 in. to 12 in.
12c.	10c.	9c.	8c.	7c.
Inc. 1 ft. to 2 ft.	Inc. 2 ft. to 4 ft.	Inc. 4 ft. to 6 ft.	Inc. 6 ft. to 8 ft.	Inc. 8 ft. to 10 ft.
6c.	5c.	6c.	8c.	10c.

Shorter than 1 in., prices quoted upon application, not less than.....12c. advance.
10 feet and over, prices quoted upon application, not less than.....10c. advance.
All Sheet Metal heavier than No. 4 listed and charged as Sawed Metal, whether sheared, slit or sawed.

For lists of Standard Sizes, see pages 102 to 108.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA SOFT YELLOW (HIGH) BRASS

In Rolls About 50 to 75 Pounds

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown and Sharpe's Gauge	Decimal Part of Inch	Weight in Lbs. per Sq. Ft.	Widths in Inches
14	.0640	2.824	6, 8, 10, 12, 14
16	.0508	2.239	6, 8, 10, 12, 14
18	.0403	1.776	6, 8, 10, 12, 14, 16, 18
20	.0319	1.408	6, 8, 10, 12, 14, 16, 18
21	.0284	1.254	6, 8, 10, 12, 14
22	.0253	1.117	6, 8, 10, 12, 14, 16, 18
23	.0225	1.001	6, 8, 10, 12, 14
24	.0201	.885	6, 8, 10, 12, 14, 16, 18
25	.0179	.793	6, 8, 10, 12, 14
26	.0159	.702	6, 8, 10, 12, 14, 16, 18
28	.0126	.557	6, 8, 10, 12, 14, 16, 18
30	.0100	.443	6, 8, 10, 12, 14
32	.0079	.352	6, 8, 10, 12, 14
34	.0063	.279	6, 8, 10, 12, 14
36	.0050	.221	6, 8, 10, 12, 14

Anaconda Soft Brass in rolls can also be furnished in widths of 5", 5½", 6½", 7", 7½", 8½", 9", 10½", 11" and 11½" in 24 and 26 B. & S. gauge for prompt shipment. Special widths and gauges made to order.

ANACONDA SOFT YELLOW (HIGH) BRASS

In Flat Sheets About 6 to 8 Feet

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown and Sharpe's Gauge	Decimal Part of Inch	Weight in Lbs. per Sq. Ft.	Widths in Inches
8	.1284	5.662	6, 8, 10, 12
10	.1018	4.490	6, 8, 10, 12
11	.0907	3.998	6, 8, 10, 12
12	.0808	3.561	6, 8, 10, 12
13	.0716	3.171	6, 8, 10, 12
14	.0640	2.824	6, 8, 10, 12

Variation from above weights must be expected in practice.

See page 100 for extras over Base Price.

See page 254 for complete Table of Weights.



ANACONDA HALF HARD YELLOW (HIGH) BRASS

In Rolls About 50 to 75 Pounds

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown and Sharpe's Gauge	Decimal Part of Inch	Weight in Lbs. per Sq. Ft.	Widths in Inches
20	.0319	1.408	6, 8, 10, 12
22	.0253	1.117	6, 8, 10, 12
24	.0201	.885	6, 8, 10, 12
26	.0179	.702	6, 8, 10, 12
27	.0141	.628	6, 8, 10, 12
28	.0126	.557	6, 8, 10, 12

ANACONDA HALF HARD YELLOW (HIGH) BRASS

In Flat Sheets About 6 to 8 Feet

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown and Sharpe's Gauge or Inch	Decimal Part of Inch	Weight in Lbs. per Sq. Ft.	Widths in Inches
$\frac{3}{8}$	.3750	16.520	6, 8, 10, 12, 14
$\frac{5}{16}$	.3125	13.770	6, 8, 10, 12, 14
$\frac{1}{4}$	.2500	11.020	6, 8, 10, 12, 14
$\frac{3}{16}$	.1875	8.261	6, 8, 10, 12, 14
$\frac{5}{32}$	.1562	7.075	12
$\frac{1}{8}$	.1250	5.662	6, 8, 10, 12, 14
10	.1018	4.490	6, 8, 10, 12, 14
11	.0907	3.998	6, 8, 10, 12, 14
12	.0808	3.561	6, 8, 10, 12, 14
13	.0719	3.171	6, 8, 12
14 ($\frac{1}{16}$ ")	.0640	2.824	6, 8, 10, 12, 14
15	.0570	2.515	6, 8, 10
16	.0508	2.239	6, 8, 10, 12, 14
17	.0452	1.994	6, 8, 10, 12, 14
18	.0403	1.776	6, 8, 10, 12, 14
20 ($\frac{1}{32}$ ")	.0319	1.408	6, 8, 10, 12, 14
22	.0253	1.117	12
24	.0201	.885	12
26	.0159	.702	12

Special widths and gauges made to order.

Variations from above weights must be expected in practice.

See page 100 for extras over Base Price.

See page 254 for complete Table of Weights.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



**ANACONDA HALF HARD SLIT
YELLOW (HIGH) BRASS**

In Coils

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Widths, Inches	B. & S. Gauge	Weight 100 Feet, Pounds	B. & S. Gauge	Weight 100 Feet, Pounds	B. & S. Gauge	Weight 100 Feet, Pounds
$\frac{1}{4}$	16	4.67	18	3.72	20	2.95
$\frac{5}{16}$	16	5.85	18	4.65	20	3.67
$\frac{3}{8}$	16	7.02	18	5.58	20	4.42
$\frac{7}{16}$	16	8.19	18	6.51	20	5.16
$\frac{1}{2}$	16	9.36	18	7.44	20	5.90
$\frac{5}{8}$	16	11.70	18	9.28	20	7.37
$\frac{3}{4}$	16	14.04	18	11.16	20	8.84
$\frac{7}{8}$	16	16.38	18	13.02	20	10.32
1	16	18.75	18	14.88	20	11.79
$1\frac{1}{8}$	16	21.09	18	16.74	20	13.27
$1\frac{1}{4}$	16	23.43	18	18.59	20	14.74
$1\frac{3}{8}$	16	25.77	18	20.36	20	16.22
$1\frac{1}{2}$	16	28.11	18	22.31	20	17.69
$1\frac{3}{4}$	16	32.79	18	26.03	20	20.64
2	16	37.50	18	29.75	20	23.58
$\frac{1}{4}$	22	2.34	24	1.85	26	1.48
$\frac{5}{16}$	22	2.92	24	2.31	26	1.85
$\frac{3}{8}$	22	3.51	24	2.78	26	2.22
$\frac{7}{16}$	22	4.09	24	3.23	26	2.59
$\frac{1}{2}$	22	4.68	24	3.71	26	2.96
$\frac{5}{8}$	22	5.85	24	4.64	26	3.33
$\frac{3}{4}$	22	7.02	24	5.56	26	4.07
$\frac{7}{8}$	22	8.19	24	6.49	26	4.81
1	22	9.36	24	7.42	26	5.55
$1\frac{1}{8}$	22	10.53	24	8.35	26	6.79
$1\frac{1}{4}$	22	11.70	24	9.28	26	7.53
$1\frac{3}{8}$	22	12.87	24	10.21	26	8.27
$1\frac{1}{2}$	22	14.04	24	11.13	26	9.01
$1\frac{3}{4}$	22	16.38	24	12.98	26	10.49
2	22	18.72	24	14.84	26	12.97

Soft Slit Brass in above sizes can be shipped very promptly.

Widths and gauges not mentioned above made to order.

Variations from above weights must be expected in practice.

See page 100 for extras over Base Price.



ANACONDA HALF HARD STRIP BRASS

In lengths about 8 to 12 feet

Standard Sizes

Immediate Shipment from Our Warehouse Stocks

Size Inches	Weight in lbs. per Lin. Ft.	Size Inches	Weight in lbs. per Lin. Ft.	Size Inches	Weight in lbs. per Lin. Ft.
$\frac{1}{16}$ x $\frac{3}{8}$	.085	$\frac{3}{32}$ x $\frac{3}{8}$	.128	$\frac{1}{8}$ x $\frac{3}{8}$	.170
$\frac{1}{16}$ x $\frac{1}{2}$	.119	$\frac{3}{32}$ x $\frac{1}{2}$	.173	$\frac{1}{8}$ x $\frac{1}{2}$	.231
$\frac{1}{16}$ x $\frac{5}{8}$	.143	$\frac{3}{32}$ x $\frac{5}{8}$	.215	$\frac{1}{8}$ x $\frac{5}{8}$	.286
$\frac{1}{16}$ x $\frac{3}{4}$	.171	$\frac{3}{32}$ x $\frac{3}{4}$	.256	$\frac{1}{8}$ x $\frac{3}{4}$	.342
$\frac{1}{16}$ x $\frac{7}{8}$	.200	$\frac{3}{32}$ x $\frac{7}{8}$	.300	$\frac{1}{8}$ x $\frac{7}{8}$	.400
$\frac{1}{16}$ x 1	.231	$\frac{3}{32}$ x 1	.346	$\frac{1}{8}$ x 1	.461
$\frac{1}{16}$ x $1\frac{1}{8}$	.265	$\frac{3}{32}$ x $1\frac{1}{8}$	.389	$\frac{1}{8}$ x $1\frac{1}{8}$	.519
$\frac{1}{16}$ x $1\frac{1}{4}$	.290	$\frac{3}{32}$ x $1\frac{1}{4}$	.435	$\frac{1}{8}$ x $1\frac{1}{4}$	.580
$\frac{1}{16}$ x $1\frac{3}{8}$	.319	$\frac{3}{32}$ x $1\frac{3}{8}$	.484	$\frac{1}{8}$ x $1\frac{3}{8}$	.634
$\frac{1}{16}$ x $1\frac{1}{2}$	.346	$\frac{3}{32}$ x $1\frac{1}{2}$	.519	$\frac{1}{8}$ x $1\frac{1}{2}$	.692
$\frac{1}{16}$ x $1\frac{3}{4}$	.404	$\frac{3}{32}$ x $1\frac{3}{4}$	.605	$\frac{1}{8}$ x $1\frac{3}{4}$	.807
$\frac{1}{16}$ x 2	.461	$\frac{3}{32}$ x 2	.692	$\frac{1}{8}$ x 2	.922

Variations from above weights must be expected in practice.

See page 175 for rectangular rods hard drawn $\frac{1}{8}$ " to $\frac{1}{2}$ " thick.

See page 100 for extras over Base Price.

ANACONDA ENGRAVERS' BRASS

Widths—6, 8, 10, 12, 14 inches

Thickness— $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ".

ANACONDA SIGN BRASS

10 to 15 feet long

16 B. & S. Gauge in widths—8, 10, 12, 14, 16, 18, 20, 22, 24, 26 and 30 inches.

Other widths or gauges made to order

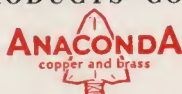
Promptly from Mill

ANACONDA BRASS SEGMENTS

Promptly supplied to Specifications

Quotations upon Request

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



HALF HARD BRASS

Large Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown & Sharpe's Gauge or Inch	Decimal Part of an Inch	Weight in Pounds per Sq. Ft.	Sizes of Sheets Inches	Brown & Sharpe's Gauge	Decimal Part of an Inch	Weight in Pounds per Sq. Ft.	Sizes of Sheets Inches
$\frac{3}{8}$	.3750	16.520	24 x 48—30 x 60	14	.0640	2.824	24 x 48—30 x 60
$\frac{5}{16}$	.3125	13.770	24 x 48—30 x 60	16	.0508	2.239	24 x 48—30 x 60
$\frac{1}{4}$	.2500	11.020	24 x 48—30 x 60	18	.0403	1.776	24 x 48—30 x 60
$\frac{3}{16}$	.1875	8.261	24 x 48—30 x 60	20	.0319	1.408	24 x 48—30 x 60
$\frac{1}{8}$	.1250	5.662	24 x 48—30 x 60	22	.0253	1.117	24 x 48
10	.1028	4.490	24 x 48	24	.0201	.885	24 x 48—30 x 60
11	.0907	3.998	24 x 48—30 x 60	26	.0159	.702	24 x 48—30 x 60
12	.0808	3.561	24 x 48	28	.0126	.557	24 x 48
13	.0719	3.171	24 x 48				

30" x 96" and 36" x 96" sizes also carried in 14 and 20 B. & S. Gauge.

ANACONDA SPRING YELLOW (HIGH) BRASS

In Rolls About 50 to 75 Pounds

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Brown & Sharpe's Gauge	Decimal Part of an Inch	Weight in Pounds per Linear Foot	Width in Inches	Brown & Sharpe's Gauge	Decimal Part of an Inch	Weight in Pounds per Linear Foot	Width in Inches
14	.0640	1.864	8	20	.0319	.929	8
15	.0570	1.660	8	22	.0253	.737	8
16	.0508	1.477	8	24	.0201	.584	8
18	.0403	1.172	8				

ANACONDA SOFT (PLATERS') BRASS

In Rolls About 5 Pounds

Immediate Shipment from Our Warehouse Stocks

Gauge	Decimal Part of an Inch	Number of Linear Feet per Pound	Width in Inches	Gauge	Decimal Part of an Inch	Number of Linear Feet per Pound	Width in Inches
38 B. & S.	.0040	11.9	6	2/0	.0020	23.8	6
40 B. & S.	.0035	13.6	6	3/0	.0015	31.7	6
1/0	.0025	19.0	6	4/0	.0010	47.6	6

Variations from above weights must be expected in practice.

See page 100 for extras over Base Price.

See page 254 for complete Table of Weights.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

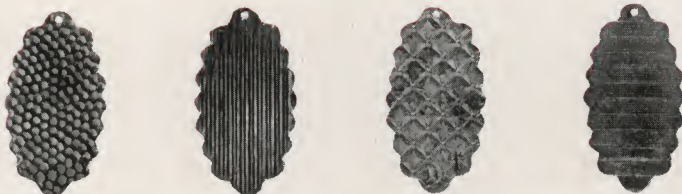


ANACONDA YELLOW (HIGH) BRASS CIRCLES AND SQUARE BLANKS

For Spinning and Stamping
In Any Size, Gauge and Temper
PROMPTLY FROM MILL

We have Facilities for Cutting Brass Circles of Many
Sizes and Gauges in our Brooklyn Warehouse

ANACONDA ORNAMENTAL OR FANCY PATTERN EMBOSSED BRASS

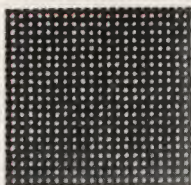


Either Standard or New Designs
Made to Order

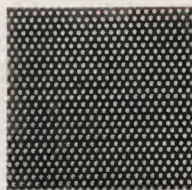
Send for Booklet Showing Many Other Patterns

PERFORATED BRASS SHEET

In Flat Sheets or in Rolls



Straight Perforations



Staggered Perforations

All Standard Patterns
Or to Your Specifications Within Mill Limits
PROMPT MILL SHIPMENT

Also Perforated From
Anaconda Copper, Bronze, Nickel Silver and Other Alloys

ANACONDA STAMPINGS AND SPECIAL SHEET BRASS PRODUCTS

Made to Order

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



SOFT ACID DIPPED TRIM BRONZE

In Rolls About 50 Pounds

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Width in Inches	Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Nearest Ounces per Sq. Ft.	Weight per Sq. Ft. in Lbs.
10	23	.0225	16	.994
10	25	.0179	14	.788
10	27	.0142	10	.625
12	23	.0225	16	.994
12	25	.0179	14	.788
12	27	.0142	10	.625
14	23	.0225	16	.994
14	26	.0159	14	.738
14	28	.0126	10	.557

QUARTER HARD ACID DIPPED TRIM BRONZE

Patent Leveled and Resquared in Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Nearest Ounces per Sq. Ft.	Weight per Sq. Ft. in Lbs.
10 x 96	23	.0225	16	.994
12 x 96	20	.0319	24	1.408
12 x 96	23	.0225	16	.994
14 x 96	20	.0319	24	1.408
14 x 96	23	.0225	16	.994
16 x 96	20	.0319	24	1.408
16 x 96	23	.0225	16	.994
18 x 96	20	.0319	24	1.408
18 x 96	23	.0225	16	.994
20 x 96	20	.0319	24	1.408
20 x 96	23	.0225	16	.994
24 x 96	20	.0319	24	1.408
24 x 96	23	.0225	16	.994
26 x 96	20	.0319	24	1.408
26 x 96	24	.0201	15	.885
30 x 96	20	.0319	24	1.408
34 x 96	20	.0319	24	1.408
36 x 96	16	.0508	36	2.239

Other sizes made to order promptly.

Variations from above weights must be expected in practice.

See page 100 for extras over Base Price.

See page 254 for complete Table of Weights on Sheet Brass.



ANACONDA PHOSPHOR BRONZE, SHEETS AND ROLLS

Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound													
Wider than and including			In. ¼	In. ¼ ½	In. ½ 2	In. 2 8	In. 8 12	In. 12 14	In. 14 16	In. 16 18	In. 18 20	In. 20 22	In. 22 24 *
Brown & Sharpe's Gauge the Standard	*No. 20	.0319	9	3	1½	Base	1	3	4½	7½	10½	13½	16½
	21	.0284	10	4	2	1	1½	4	6	9	12	15	18
	22	.0253	10	4	2	1	1½	4	6	9	12	15	18
	23	.0225	10½	4½	3	1½	2	4½	7½	10½	13½	16½	19½
	24	.0201	10½	4½	3	1½	2	4½	7½	10½	13½	16½	19½
	25	.0179	11	5	4	2	3	6	9	12	15		
	26	.0159	11	5	4	2	3	6	9	12	15		
	27	.0142	12	6	4½	3	4½						
	28	.0126	12	6	4½	3	4½						
	29	.0112	22	8	6	4	6						
	30	.0100	22	8	6	4	6						
	31	.0089	22½	9	7	4½	7½						
	32	.0079	24	10½	8	6							
	33	.0071	34½	16½	12	7½							
	34	.0063	39	21	16½	12							

*Extreme widths and gauges in which Phosphor Bronze can be supplied depends upon the temper. Information furnished on request.

Metal between gauges takes the price of the nearest gauge.
Circles and cutting to length, same advances as those applying to Sheet Brass.
Sawing, double the extras for pricing sawed brass.

ANACONDA PHOSPHOR BRONZE SHEETS

SPRING TEMPER
STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Width in Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.	Width in Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.
In Flat Sheets, 6 to 8 Feet Long				In Rolls About 25 to 40 Pounds			
6	14	.0648	2.967	6	20	.0319	1.480
6	15	.0570	2.642	6	22	.0253	1.174
6	16	.0508	2.353	6	24	.0201	.930
6	17	.0452	2.096	6	26	.0159	.738
6	18	.0403	1.866	6	28	.0126	.585
				6	30	.0100	.464

Special sizes made to order promptly.
Variations from above weights must be allowed in practice.



COPPER MARQUEE, 330 FEET LONG

SHEET COPPER

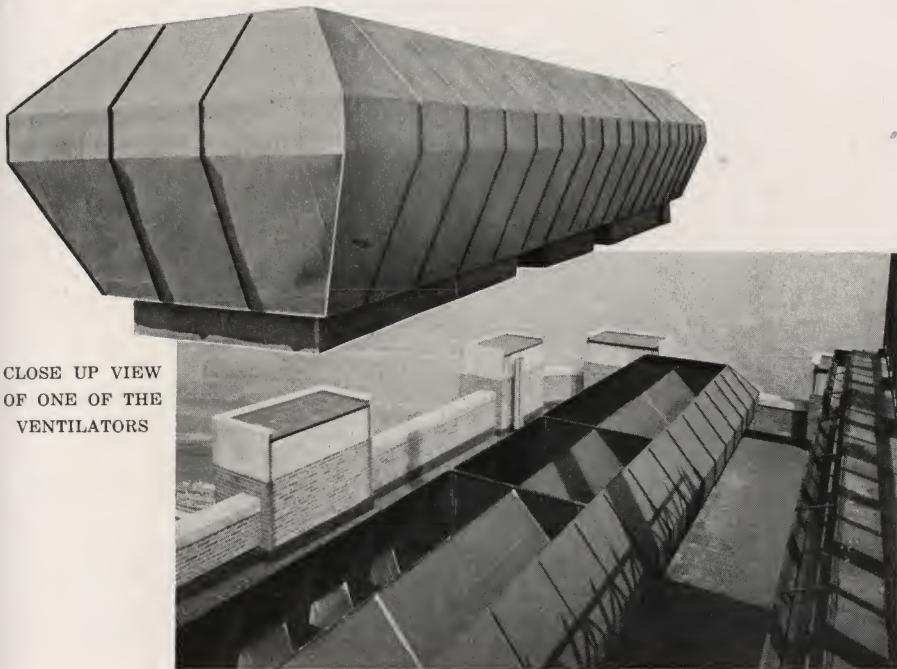
A Metal of Endurance and Beauty

BECAUSE copper is an everlasting metal it is particularly adapted for use in exposed positions where good service is desired, combined with beauty of appearance. Copper cannot rust but after it has been exposed to the weather for a time the metal acquires a green patina that is highly pleasing to the eye.

Sheet copper is being used more and more today for electric signs and for sidewalk canopies. The marquee which is shown at the top of this page is 330 feet long. More than a ton of copper went into this installation. It is worth noting that the first design of the marquee contemplated the use of corrodible metal in cast form for decorative effects. However, copper was selected instead and the pattern which had been planned for the corrodible castings was followed at a saving of about \$8,000. The copper work and stampings were given a statuary bronze finish prior to installation.

Apart from the usual employment of sheet copper for roofing purposes, the use of this metal in the ventilation systems of large modern office buildings is of special interest. The illustration on the next page shows the huge main exhaust of the ventilating system in the New York Telephone Company's building, 140 West Street. It is 56 feet long and is made entirely of copper. The ventilating ducts which circulate air through

this building are enormous. They required about 50,000 pounds of copper. Unlike the marquee or electric sign, which combines service with ornamentation, the copper ventilating system is a strictly utilitarian employment of the metal. Nevertheless, it is one of the most important uses of copper in a modern building of the type of 140 West Street, New York.



THE HUGE MAIN VENTILATING EXHAUST ON THE ROOF OF 140 WEST STREET, THE NEW YORK TELEPHONE COMPANY'S BUILDING, IS MADE OF SHEET COPPER

The following table affords an interesting basis for comparison of the relative weights of seven types of roofing as compared with two types of Copper roofing.

The saving in the structural cost of the framing is thus apparent and demonstrable.

Material	Weight per 100 Sq. Ft. Laid
Shingle Tile.....	1200—1800 lbs.
Spanish Tile.....	650— 850 lbs.
Slate.....	450— 675 lbs.
Felt and Gravel (or Slag).....	400— 625 lbs.
Asbestos Shingles.....	300— 650 lbs.
Hardlead Sheets.....	210— 325 lbs.
Wood Shingles.....	200— 300 lbs.
20 g. Galvanized Iron (Corrugated).....	225 lbs.
16 oz. Copper (Standing Seam).....	125 lbs.
Copper Shingles.....	84— 100 lbs.
Tin.....	75 lbs.



ANACONDA SHEET COPPER

Plain Both Sides

The Longest Dimension of Any Sheet Shall be Considered Its Length

Base Price Quoted upon Application. Extras Over Base Price, Cents per Pound

SIZE OF SHEETS In Inches			Lengths														Lighter than 8 oz. .0108"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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			Inc. 64 oz. .0864" and thicker	Inc. 48 oz. .0648" to 64 oz. .0864"	Inc. 32 oz. .0432" to 48 oz. .0648"	Inc. 24 oz. .0324" to 32 oz. .0432"	Inc. 20 oz. .027" to 24 oz. .0324"	Inc. 18 oz. .0243" to 20 oz. .027"	Inc. 16 oz. .0216" to 18 oz. .0243"	Inc. 14 oz. .0189" to 16 oz. .0216"	Inc. 12 oz. .0162" to 14 oz. .0189"	Inc. 10 oz. .0135" to 12 oz. .0162"	9 oz. to .0122"	8 oz. to .0108"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Including 6	Over	Inc. 6	Base	Base	1	1½	2	2½	3	3½	4	5	5½	6	6½	7		7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½	18	18½	19	19½	20	20½	21	21½	22	22½	23	23½	24	24½	25	25½	26	26½	27	27½	28	28½	29	29½	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	36½	37	37½	38	38½	39	39½	40	40½	41	41½	42	42½	43	43½	44	44½	45	45½	46	46½	47	47½	48	48½	49	49½	50	50½	51	51½	52	52½	53	53½	54	54½	55	55½	56	56½	57	57½	58	58½	59	59½	60	60½	61	61½	62	62½	63	63½	64	64½	65	65½	66	66½	67	67½	68	68½	69	69½	70	70½	71	71½	72	72½	73	73½	74	74½	75	75½	76	76½	77	77½	78	78½	79	79½	80	80½	81	81½	82	82½	83	83½	84	84½	85	85½	86	86½	87	87½	88	88½	89	89½	90	90½	91	91½	92	92½	93	93½	94	94½	95	95½	96	96½	97	97½	98	98½	99	99½	100	100½	101	101½	102	102½	103	103½	104	104½	105	105½	106	106½	107	107½	108	108½	109	109½	110	110½	111	111½	112	112½	113	113½	114	114½	115	115½	116	116½	117	117½	118	118½	119	119½	120	120½	121	121½	122	122½	123	123½	124	124½	125	125½	126	126½	127	127½	128	128½	129	129½	130	130½	131	131½	132	132½	133	133½	134	134½	135	135½	136	136½	137	137½	138	138½	139	139½	140	140½	141	141½	142	142½	143	143½	144	144½	145	145½	146	146½	147	147½	148	148½	149	149½	150	150½	151	151½	152	152½	153	153½	154	154½	155	155½	156	156½	157	157½	158	158½	159	159½	160	160½	161	161½	162	162½	163	163½	164	164½	165	165½	166	166½	167	167½	168	168½	169	169½	170	170½	171	171½	172	172½	173	173½	174	174½	175	175½	176	176½	177	177½	178	178½	179	179½	180	180½	181	181½	182	182½	183	183½	184	184½	185	185½	186	186½	187	187½	188	188½	189	189½	190	190½	191	191½	192	192½	193	193½	194	194½	195	195½	196	196½	197	197½	198	198½	199	199½	200	200½	201	201½	202	202½	203	203½	204	204½	205	205½	206	206½	207	207½	208	208½	209	209½	210	210½	211	211½	212	212½	213	213½	214	214½	215	215½	216	216½	217	217½	218	218½	219	219½	220	220½	221	221½	222	222½	223	223½	224	224½	225	225½	226	226½	227	227½	228	228½	229	229½	230	230½	231	231½	232	232½	233	233½	234	234½	235	235½	236	236½	237	237½	238	238½	239	239½	240	240½	241	241½	242	242½	243	243½	244	244½	245	245½	246	246½	247	247½	248	248½	249	249½	250	250½	251	251½	252	252½	253	253½	254	254½	255	255½	256	256½	257	257½	258	258½	259	259½	260	260½	261	261½	262	262½	263	263½	264	264½	265	265½	266	266½	267	267½	268	268½	269	269½	270	270½	271	271½	272	272½	273	273½	274	274½	275	275½	276	276½	277	277½	278	278½	279	279½	280	280½	281	281½	282	282½	283	283½	284	284½	285	285½	286	286½	287	287½	288	288½	289	289½	290	290½	291	291½	292	292½	293	293½	294	294½	295	295½	296	296½	297	297½	298	298½	299	299½	300	300½	301	301½	302	302½	303	303½	304	304½	305	305½	306	306½	307	307½	308	308½	309	309½	310	310½	311	311½	312	312½	313	313½	314	314½	315	315½	316	316½	317	317½	318	318½	319	319½	320	320½	321	321½	322	322½	323	323½	324	324½	325	325½	326	326½	327	327½	328	328½	329	329½	330	330½	331	331½	332	332½	333	333½	334	334½	335	335½	336	336½	337	337½	338	338½	339	339½	340	340½	341	341½	342	342½	343	343½	344	344½	345	345½	346	346½	347	347½	348	348½	349	349½	350	350½	351	351½	352	352½	353	353½	354	354½	355	355½	356	356½	357	357½	358	358½	359	359½	360	360½	361	361½	362	362½	363	363½	364	364½	365	365½	366	366½	367	367½	368	368½	369	369½	370	370½	371	371½	372	372½	373	373½	374	374½	375	375½	376	376½	377	377½	378	378½	379	379½	380	380½	381	381½	382	382½	383	383½	384	384½	385	385½	386	386½	387	387½	388	388½	389	389½	390	390½	391	391½	392	392½	393	393½	394	394½	395	395½	396	396½	397	397½	398	398½	399	399½	400	400½	401	401½	402	402½	403	403½	404	404½	405	405½	406	406½	407	407½	408	408½	409	409½	410	410½	411	411½	412	412½	413	413½	414	414½	415	415½	416	416½	417	417½	418	418½	419	419½	420	420½	421	421½	422	422½	423	423½	424	424½	425	425½	426	426½	427	427½	428	428½	429	429½	430	430½	431	431½	432	432½	433	433½	434	434½	435	435½	436	436½	437	437½	438	438½	439	439½	440	440½	441	441½	442	442½	443	443½	444	444½	445	445½	446	446½	447	447½	448	448½	449	449½	450	450½	451	451½	452	452½	453	453½	454	454½	455	455½	456	456½	457	457½	458	458½	459	459½	460	460½	461	461½	462	462½	463	463½	464	464½	465	465½	466	466½	467	467½	468	468½	469	469½	470	470½	471	471½	472	472½	473	473½	474	474½	475	475½	476	476½	477	477½	478	478½	479	479½	480	480½	481	481½	482	482½	483	483½	484	484½	485	485½	486	486½	487	487½	488	488½	489	489½	490	490½	491	491½	492	492½	493	493½	494	494½	495	495½	496	496½	497	497½	498	498½	499	499½	500	500½	501	501½	502	502½	503	503½	504	504½	505	505½	506	506½	507	507½	508	508½	509	509½	510	510½	511	511½	512	512½	513	513½	514	514½	515	515½	516	516½	517	517½	518	518½	519	519½	520	520½	521	521½	522	522½	523	523½	524	524½	525	525½	526	526½	527	527½	528	528½	529	529½	530	530½	531	531½	532	532½	533	533½	534	534½	535	535½	536	536½	537	537½	538	538½	539	539½	540	540½	541	541½	542	542½	543	543½	544	544½	545	545½	546	546½	547	547½	548	548½	549	549½	550	550½	551	551½	552	552½	553	553½	554	554½	555	555½	556	556½	557	557½	558	558½	559	559½	560	560½	561	561½	562	562½	563	563½	564	564½	565	565½	566	566½	567	567½	568	568½	569	569½	570	570½	571	571½	572	572½	573	573½	574	574½	575	575½	576	576½	577	577½	578	578½	579	579½	580	580½	581	581½	582	582½	583	583½	584	584½	585	585½	586	586½	587	587½	588	588½	589	589½	590	590½	591	591½	592	592½	593	593½	594	594½	595	595½	596	596½	597	597½	598	598½	599	599½	600	600½	601	601½	602	602½	603	603½	604	604½	605	605½	606	606½	607	607½	608	608½	609	609½	610	610½	611	611½	612	612½	613	613½	614	614½	615	615½	616	616½	617	617½	618	618½	619	619½	620	620½	621	621½	622	622½	623	623½	624	624½	625	625½	626	626½	627	627½	628	628½	629	629½	630	630½	631	631½	632	632½	633	633½	634	634½	635	635½	636	636½	637	637½	638	638½	639	639½	640	640½	641	641½	642	642½	643	643½	644	644½	645	645½	646	646½	647	647½	648	648½	649	649½	650	650½	651	651½	652	652½	653	653½	654	654½	655	655½	656	656½	657	657½	658	658½	659	659½	660	660½	661	661½	662	662½	663	663½	664	664½	665	665½	666	666½	667	667½	668	668½	669	669½	670	670½	671	671½	672	672½	673	673½	674	674½	675	675½	676	676½	677	677½	678	678½	679	679½	680	680½	681	681½	682	682½	683	683½	684	684½	685	685½	686	686½	687	687½	688	688½	689	689½	690	690½	691	691½	692	692½	693	693½	694	694½	695	695½	696	696½	697	697½	698	698½	699	699½	700	700½	701	701½	702	702½	703	703½	704	704½	705	705½	706	706½	707	707½	708	708½	709	709½	710	710½	711

Prices Quoted Upon Application



ANACONDA SHEET COPPER—Continued

SIZE OF SHEETS In Inches		Inc. 64 oz. .0864" and thicker	Inc. 48 oz. .0648" to thicker	Inc. 32 oz. .0432" to thicker	Inc. 24 oz. .0324" to thicker	Inc. 20 oz. .027" to thicker	Inc. 18 oz. .0243" to thicker	Inc. 16 oz. .0216" to thicker	Inc. 14 oz. .0189" to thicker	Inc. 12 oz. .0162" to thicker	Inc. 10 oz. .0135" to thicker
Widths	Lengths										
	Over	Not Over									
Over 60	...	72	2	4	6	8½	12	15½	18		
	72	96	1½	3	5	7½	11	14½	20		
	96	120	1½	3½	6	9	12	15½			
Not over 72	120	200	2	4	7	10	13				
	...	96	3	6	9	12	15				
	96	120	2	5	8	11	14				
Over 72 Not over 108	120	200	3½	7	10	13					
	...	120	4½	7							
	120	200	6	9½							
Over 108 Not over 120	...	132	7	10½							
	132	200	8								
	...	200	9½								

For Sheets lighter than 10 ounces per square foot List Extras will be quoted upon application.
All Cold Rolled Sheet Copper thicker than ⅜ in., or Hot Rolled Sheet Copper thicker than ½ in., will be priced as Sawed Copper.

ESPECIALLY LARGE COPPER SHEETS

Our Mill is prepared to furnish Copper Plates, Sheets, Segments, Circles or Semi-Circles up to but not exceeding 6,000 pounds finished weight per piece and these sheets can be supplied in the following dimensions:

- ¼" and thicker—up to 138" wide and 240" long.
- ⅜" to ½" in thickness—up to 132" wide and 240" long.
- ⅝" to ¾" in thickness—up to 108" wide and 180" long.



ANACONDA SHEET COPPER—Continued

EXTRAS

COLD ROLLING

$\frac{1}{4}$ in. and thicker..... 3 c lb.
14 oz. (.0189) per sq. ft., to $\frac{1}{4}$ in. thick..... 4 $\frac{1}{2}$ c lb.
Lighter than 14 oz..... 8 c lb.

Tinned Sheets and Circles, cold rolling charge, $\frac{1}{2}$ c per lb. extra over above prices.

Copper Prepared Suitable for Polishing, cold rolling charge, 3c per lb. extra over above prices.

Cold Rolled and Annealed Copper Sheets and Circles take same price as Cold Rolled or Hard Copper of corresponding dimensions and thickness.

Specially Prepared Copper, prices quoted upon application.

Tinned Both Sides, double the square feet.

For tinning the edges of sheets one or both sides, price shall be the same as for tinning all of one side of the specified sheet.

CIRCLES

10 in. to 20 in. diameter both inc., 6c per lb. advance over price of Sheet Copper from which they are cut.

Over 20 in. diameter, 8c per lb. advance over price of Sheet Copper from which they are cut.

Less than 10 in. diameter.....Special Prices.

For tinning or polishing circles the price per square foot is based upon the square of the circle or the sheet from which it is cut.

POLISHING

Over Price for Cold Rolled Copper

Length 60 in. and less Over 60 in. long
16 in. wide and under..... 5c per sq. ft. 6c per sq. ft.
Over 16 in. to 36 in. inc..... 6c per sq. ft. 7c per sq. ft.
Over 36 in..... 8c per sq. ft. 9c per sq. ft.

Polished Both Sides, double the square feet.

Planished Copper, (polished and lacquered) $\frac{1}{2}$ c per sq. ft. over price for Polished Copper.

TINNING

Length 60 in. and less Over 60 in. long
16 in. wide and under..... 7c per sq. ft. 8c per sq. ft.
Over 16 in. to 36 in. inc..... 8c per sq. ft. 9c per sq. ft.
Over 36 in..... 9c per sq. ft. 11c per sq. ft.

Extra charges for items of less than 200 lbs., see page 99.
For Lists of Standard Sizes, see pages 118 to 127.

EXTRAS FOR SAWING

Sawed Copper, 6 in. wide and over, add the following extras to price of Sheet Copper of corresponding size, gauge and temper.

Width	Cents per Pound
Inc. $\frac{1}{4}$ in. to $\frac{1}{2}$ in. inc.....	2 $\frac{1}{4}$
Over 20 in.....	1 $\frac{1}{2}$

Sawed Copper under 6 in. wide, add the following extras to price of Sheet Copper 6 in. wide of corresponding length, gauge and temper.

Width	Cents per Pound
Inc. $\frac{1}{4}$ in. to $\frac{1}{2}$ in.....	15
Inc. $\frac{1}{2}$ in. to 2 in.....	8
Inc. 2 in. to 4 in.....	6
Inc. 4 in. to 6 in.....	4

Sawing to lengths 24 in. to 200 in., both inclusive, no charge.
Sawing to lengths under 24 in. or over 200 in., prices quoted upon application.

ANACONDA COPPER IN ROLLS, SPRING AND BRUSH COPPER

Brown & Sharpe's Gauge the Standard

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

No. 20 21 22	Wider than and including	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	Ounces per Sq. Ft.
		1/4	1/2	3/4	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2
23 24 25	.0319 .0284 .0253	7	7 1/4	7 1/2	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5	5 1/2	6	6 1/2
		8	8 1/4	8 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8
		9	9 1/4	9 1/2	4	4 1/4	4 1/2	4 3/4	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7
		10	10 1/4	10 1/2	4 1/4	4 1/2	4 3/4	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8
26 27 28	.0225 .0201 .0179	11	11 1/4	11 1/2	4 1/2	4 3/4	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4
		12	12 1/4	12 1/2	4 3/4	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2
		13	13 1/4	13 1/2	5	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4
		14	14 1/4	14 1/2	5 1/4	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 5/8
29 30 31	.0159 .0142 .0126	15	15 1/4	15 1/2	5 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8
		16	16 1/4	16 1/2	5 3/4	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8
		17	17 1/4	17 1/2	6	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/8
		18	18 1/4	18 1/2	6 1/4	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4
32 33 34	.0112 .0100 .0089	19	19 1/4	19 1/2	6 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2
		20	20 1/4	20 1/2	6 3/4	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4
		21	21 1/4	21 1/2	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8
		22	22 1/4	22 1/2	7	7 1/8	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8	9
35 36	.0079 .0071 .0063	23	23 1/4	23 1/2	7 1/4	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2
		24	24 1/4	24 1/2	7 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4
		25	25 1/4	25 1/2	7 3/4	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	10
		26	26 1/4	26 1/2	7 7/8	8	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10 1/8
37 38 39	.0056 .0050	27	27 1/4	27 1/2	8	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8
		28	28 1/4	28 1/2	8 1/4	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4
		29	29 1/4	29 1/2	8 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2
		30	30 1/4	30 1/2	8 3/4	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4
40 41 42		31	31 1/4	31 1/2	8 7/8	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11
		32	32 1/4	32 1/2	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8
		33	33 1/4	33 1/2	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4
		34	34 1/4	34 1/2	9 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2
43 44 45		35	35 1/4	35 1/2	9 3/4	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4
		36	36 1/4	36 1/2	9 7/8	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4	12
		37	37 1/4	37 1/2	10	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4	12	12 1/8
		38	38 1/4	38 1/2	10 1/4	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2
46 47 48		39	39 1/4	39 1/2	10 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4
		40	40 1/4	40 1/2	10 3/4	11	11 1/8	11 1/4	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4	13
		41	41 1/4	41 1/2	11	11 1/8	11 1/4	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4	13	13 1/8
		42	42 1/4	42 1/2	11 1/4	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2
49 50 51		43	43 1/4	43 1/2	11 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4
		44	44 1/4	44 1/2	11 3/4	12	12 1/8	12 1/4	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4	14
		45	45 1/4	45 1/2	12	12 1/8	12 1/4	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4	14	14 1/8
		46	46 1/4	46 1/2	12 1/4	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2
52 53 54		47	47 1/4	47 1/2	12 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4
		48	48 1/4	48 1/2	12 3/4	13	13 1/8	13 1/4	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4	15
		49	49 1/4	49 1/2	13	13 1/8	13 1/4	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4	15	15 1/8
		50	50 1/4	50 1/2	13 1/4	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2
55 56 57		51	51 1/4	51 1/2	13 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4
		52	52 1/4	52 1/2	13 3/4	14	14 1/8	14 1/4	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4	16
		53	53 1/4	53 1/2	14	14 1/8	14 1/4	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4	16	16 1/8
		54	54 1/4	54 1/2	14 1/4	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2
58 59 60		55	55 1/4	55 1/2	14 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4
		56	56 1/4	56 1/2	14 3/4	15	15 1/8	15 1/4	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4	17
		57	57 1/4	57 1/2	15	15 1/8	15 1/4	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4	17	17 1/8
		58	58 1/4	58 1/2	15 1/4	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2
61 62 63		59	59 1/4	59 1/2	15 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4
		60	60 1/4	60 1/2	15 3/4	16	16 1/8	16 1/4	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4	18
		61	61 1/4	61 1/2	16	16 1/8	16 1/4	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4	18	18 1/8
		62	62 1/4	62 1/2	16 1/4	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4	18	18 1/8	18 1/4	18 1/2
64 65 66		63	63 1/4	63 1/2	16 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4	18	18 1/8	18 1/4	18 1/2	18 3/4
		64	64 1/4	64 1/2	16 3/4	17	17 1/8	17 1/4	17 1/2	17 3/4	18	18 1/8	18 1/4	18 1/2	18 3/4	19
		65	65 1/4	65 1/2	17	17 1/8	17 1/4	17 1/2	17 3/4	18	18 1/8	18 1/4	18 1/2	18 3/4	19	19 1/8
		66	66 1/4	66 1/2	17 1/4	17 1/2	17 3/4	18	18 1/8	18 1/4	18 1/2	18 3/4	19	19 1/8	19 1/4	19 1/2

Metal between gauges takes the price of nearest gauge.
For Lists of Standard Sizes, see pages 118 to 127.



CUTTING TO UNIFORM SPECIFIC LENGTHS, NOT SQUARED

Extras Over Price of Copper in Rolls of Corresponding Width and Gauge, Cents per Pound

Width Inches	Length Feet	Inc. No. 20 (.0319) and thicker	Inc. No. 21 (.0284) Inc. No. 25 (.0179)	Inc. No. 26 (.0159) Inc. No. 30 (.0100)	Inc. No. 31 (.0089) Inc. No. 35 (.0056)	Inc. No. 36 (.0050)
Over 1/4 to 1/2 Inc.	Inc. 2 to 6 Inc. Over 6 to 8 Inc. Over 8 to 10 Inc.	4 6 8	5 7 9	7 9 11	10 12 14	20 22 24
Over 1/2 to 2 Inc.	Inc. 2 to 6 Inc. Over 6 to 8 Inc. Over 8 to 10 Inc.	2 4 6	3 5 7	4 6 8	6 8 10	10 12 14
Over 2 to 18 Inc.	Inc. 2 to 6 Inc. Over 6 to 8 Inc. Over 8 to 10 Inc.	1 2 1/2 3 1/2	2 3 4 1/2	3 4 1/2 6	4 6 8	

Roll Copper wider than 1/2 in., thicker than No. 20; also widths over 1/4 in. to 1/2 in. wide inc., No. 16 to and inc. No. 19, priced the same as No. 20.

Roll Copper wider than 1/4 in. to 1/2 in. inc., No. 8 to and inc. No. 15....2c advance over price of No. 20.

Roll Copper given extra rolling (especially light temper).....1c advance.

Roll Copper Wider than 18 in.; also widths of 6 in. up to and including 18 in. cut to flat lengths. Resquared and Leveled, price as Sheet Copper.

Roll Copper narrower than 6 in. cut to length, Resquared and Leveled...2c advance over price of Roll Copper cut to exact lengths.

No Roll Copper thinner than No. 20, 2 in. wide and narrower or of any thickness 1/2 in. wide and narrower, furnished in flat random lengths, without extra charge for cutting and straightening.

FURNISHED WITH ROLLED ROUND OR SQUARE EDGES

Thickness { To and Inc.	Inc. No. 8 (.1285) No. 13 (.0719)	No. 14 (.0641) No. 24 (.0201)	No. 25 (.0179) No. 26 (.0159)	No. 27 (.0142) No. 28 (.0126)	No. 29 (.0112) No. 30 (.010)
Over 4 in. to 6 in., inc.	1	1 1/2			
Over 3 in. to 4 in., inc.	1	1 1/2	3	4 1/2	7 1/2
Over 1/2 in. to 3 in., inc.	1	1 1/2	3	5 1/2	10
Over 1/4 in. to 1/2 in., inc.	2	2 1/2	4	7	
1/4 in. and narrower	3 1/2	4	5 1/2		

Metal between gauges takes the price of nearest gauge. Copper in sizes other than noted above furnished with Rolled Round or Square Edges, prices quoted upon application.

For Lists of Standard Sizes see pages 118 to 127. Extra charges for items of less than 200 lbs., see page 99.



STRIPS—BOTTOMS—FLATS—SEGMENTS

ANACONDA ECONOMY STRIP COPPER

Resquared, Leveled and Packed Flat

For Conductor Pipes, Leaders, Gutters, Valleys, Flashings and General Roofing Purposes

Base Price Quoted upon Application

Extras Over Base Price, Cents per Pound

Brown & Sharpe's Gauge the Standard

Ounces per Sq. Ft.	Decimal Equiv. Inches	Nearest B. & S. Gauge	WIDTHS				
			Over 6 in. to 8 in. inc.	Over 8 in. to 10 in. inc.	Over 10 in. to 12 in. inc.	Over 12 in. to 14 in. inc.	Over 14 in. to 16 in. inc.
24	.0324	20	2¼	2¼	2¾	3¼	3¾
20	.0270	21	3	3	3½	4	4¾
18	.0243	22	3¼	3¼	3¾	4¼	5
16	.0216	23	3½	3¾	4¼	4¾	5¾
15	.0203	24	3¾	4½	5	5¾	7
14	.0189	25	4½	5	5½	6¼	7½

Strip Copper is furnished in lengths of 5 ft. to and including 10 ft.

Strip Copper between gauges takes price of nearest gauge.

Resquared and Leveled Copper, 6 in. and wider, other than sizes shown above, priced as Sheet Copper
Items of less than 500 lbs., priced as Sheet Copper.

Anaconda Economy Strip Copper comes from the mill already trimmed to right dimensions for conductor pipes, leaders, gutters, valleys, flashings and general roofing purposes. It is free from waves and buckles, correctly tempered and with edges absolutely parallel. Each strip is identified with the Anaconda Trade Mark and all 16 oz. material has the weight stamped in the metal.

Anaconda Lead Coated Economy Strip—Use same extras as for Lead coated Copper Sheet.

For stock sizes of Economy Strip see page 126.

ANACONDA COPPER BOTTOMS AND FLATS

TINNED ONE SIDE

OVALS

24 oz. to square foot and heavier Base

Cents per Pound Over Base Price

Inc. 22 oz. to 24 oz. to square foot.	2
Inc. 20 oz. to 22 oz. to square foot.	2½
Inc. 18 oz. to 20 oz. to square foot.	3½
Inc. 16 oz. to 18 oz. to square foot.	4½
15 oz. to square foot.	5¼
14 oz. to square foot.	6¼
13 oz. to square foot.	9¼
12 oz. to square foot.	11¾
11 oz. to square foot.	14½
10 oz. to square foot.	17½
Lighter than 10 oz. to square foot.	Special Prices

ROUNDS

8 in. diameter to 17 in. diameter, both inclusive, and
14 oz. and heavier, 3c per lb. advance over price
of Ovals.

Lighter than 14 oz., 4c per lb. advance over price of
Ovals.

Less than 8 in. diameter Special Prices
Copper Circles, Tinned One Side, over 17 in. diameter
not classed as Copper Bottoms.

POLISHING

Polished Copper Bottoms and Flats, 5c per sq. ft.
extra. For polishing circles and flats, the prices
per sq. ft. are based upon the square of the circle
or the sheet from which the piece is cut.

Base Price Quoted upon Application

ANACONDA COPPER ANODES

Rectangular and oval in all standard measurements. Prices upon application.

Extras for items of less than 200 lbs., see page 99.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA HOT ROLLED (SOFT) COPPER SHEET

In Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equiva- lent	Weight per Full Sheet in Lbs.
14 x 48	10	27	29	.0135	2.91
14 x 48	12	26	27	.0162	3.50
14 x 48	14	25	26	.0189	4.08
14 x 48	16	23	24	.0216	4.67
14 x 48	18	22	23	.0243	5.25
14 x 48	20	21	22	.0270	5.83
16 x 96	16	23	24	.0216	10.67
18 x 96	14	25	26	.0189	10.50
18 x 96	16	23	24	.0216	12.00
20 x 96	14	25	26	.0189	11.67
20 x 96	16	23	24	.0216	13.34
22 x 96	14	25	26	.0189	12.84
22 x 96	16	23	24	.0216	14.67
24 x 48	12	26	27	.0162	6.00
24 x 48	14	25	26	.0189	7.00
24 x 48	16	23	24	.0216	8.00
24 x 48	18	22	23	.0243	9.00
24 x 96	14	25	26	.0189	14.00
24 x 96	16	23	24	.0216	16.00
24 x 96	18	22	23	.0243	18.00
26 x 96	14	25	26	.0189	15.17
26 x 96	16	23	24	.0216	17.34
28 x 96	14	25	26	.0189	16.33
28 x 96	16	23	24	.0216	18.67
30 x 60	10	27	29	.0135	7.81
30 x 60	12	26	27	.0162	9.38
30 x 60	14	25	26	.0189	10.94
30 x 60	16	23	24	.0216	12.50
30 x 60	18	22	23	.0243	14.07
30 x 60	20	21	22	.0270	15.63
30 x 96	14	25	26	.0189	17.50
30 x 96	16	23	24	.0216	20.00
30 x 96	18	22	23	.0243	22.50
30 x 96	20	21	22	.0270	25.00
32 x 96	16	23	24	.0216	21.33
34 x 96	16	23	24	.0216	22.67
36 x 72	14	25	26	.0189	15.75
36 x 72	16	23	24	.0216	18.00
36 x 96	14	25	26	.0189	21.00
36 x 96	16	23	24	.0216	24.00
36 x 96	18	22	23	.0243	27.00
36 x 96	20	21	22	.0270	30.00
36 x 96	24	20	21	.0324	36.00
36 x 120	16	23	24	.0216	30.00
48 x 72	14	25	26	.0189	21.00
48 x 72	16	23	24	.0216	24.00
48 x 72	18	22	23	.0243	27.00
48 x 72	20	21	22	.0270	30.00

Variations from above weights must be expected in practice.

See pages 112 and 113 for extras over Base Price. Additional sizes on pages 120 and 121.
See page 255 for complete Table of Weights.

**ANACONDA COLD ROLLED ANNEALED (SOFT) COPPER**

In Rolls 75 to 100 Pounds

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Width Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equiv- alent Inches	Weight in Lbs. per Sq. Ft.
4	16	23	24	.0216	1.000
5	16	23	24	.0216	1.000
6	16	23	24	.0216	1.000
7	16	23	24	.0216	1.000
7 1/2	16	23	24	.0216	1.000
8	16	23	24	.0216	1.000
8 1/2	12	26	27	.0162	.750
8 3/4	8	29	31	.0108	.500
10	10	27	29	.0135	.625
10	12	26	27	.0162	.750
10	14	25	26	.0189	.875
10	16	23	24	.0216	1.000
10	18	22	23	.0243	1.125
10	20	21	22	.0270	1.250
10	24	20	21	.0324	1.500
10 1/4	8	29	31	.0108	.500
12	10	27	29	.0135	.625
12	12	26	27	.0162	.750
12	14	25	26	.0189	.875
12	16	23	24	.0216	1.000
12	18	22	23	.0243	1.125
12	20	21	22	.0270	1.250
12	24	20	21	.0324	1.500
14	10	27	29	.0135	.625
14	12	26	27	.0162	.750
14	14	25	26	.0189	.875
14	16	23	24	.0216	1.000
14	18	22	23	.0243	1.125
14	20	21	22	.0270	1.250
14	24	20	21	.0324	1.500
15	16	23	24	.0216	1.000
15	18	22	23	.0243	1.125
16	16	23	24	.0216	1.000
16	18	22	23	.0243	1.125
18	16	23	24	.0216	1.000
20	16	23	24	.0216	1.000

Widths and Gauges not listed can be made to order promptly.

Variations from above weights must be expected in practice.

*See pages 115 and 116 for extras over Base Price.**See page 255 for complete Table of Weights.*

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA HOT ROLLED PLAIN BRAZIERS' COPPER

IN FLAT SHEETS
COPPERSMITHS' SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Weight in Lbs. per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubbs' Gauge	Decimal Equivalent & Nearest Fraction of an Inch	Weight of Full Sheet in Lbs.
30 x 60	1½	20	21	.0324— $\frac{1}{32}$ +	18¾
30 x 60	1⅝	19	20	.0350	20½
30 x 60	1¾	19	20	.0378	21¾
30 x 60	2	17	19	.0432	25
30 x 60	2¼	16	18	.0486— $\frac{3}{64}$ +	28
30 x 60	2½	15	17	.0540	31¼
30 x 60	3	14	16	.0648— $\frac{1}{16}$ +	37½
30 x 60	3½	13	15	.0756— $\frac{3}{64}$ -	43¾
30 x 60	4	11	14	.0864	50
30 x 60	5	10	12	.1080— $\frac{7}{64}$ +	62½
30 x 60	6	8	10	.1296— $\frac{1}{8}$ +	75½
36 x 72	2	17	19	.0432	36
36 x 72	3	14	16	.0648— $\frac{1}{16}$ +	54
36 x 72	4	11	14	.0864	72
36 x 72	6	8	10	.1296— $\frac{1}{8}$ +	108
48 x 72	1½	20	21	.0324— $\frac{1}{32}$ +	36
48 x 72	1¾	19	20	.0378	42
48 x 72	2	17	19	.0432	48
48 x 72	2¼	16	18	.0486— $\frac{3}{64}$ +	54
48 x 72	2½	15	17	.0540	60
48 x 72	3	14	16	.0648— $\frac{1}{16}$ +	72
48 x 72	3½	13	15	.0756— $\frac{3}{64}$ -	84
48 x 72	4	11	14	.0864	96
48 x 72	4½	10	13	.0972— $\frac{3}{32}$ +	108
48 x 72	5	10	12	.1080— $\frac{7}{64}$ +	120
48 x 72	5½	9	11	.1188	132
48 x 72	6	8	10	.1296— $\frac{1}{8}$ +	144
48 x 72	7	7	9	.1512— $\frac{5}{32}$ -	168
48 x 72	8	5	8	.1728— $\frac{11}{64}$ -	192
48 x 72	9	4	6	.1944— $\frac{3}{16}$ +	216
48 x 72	12	2	3	.2592— $\frac{1}{4}$ +	288
48 x 96	2	17	19	.0432	64
48 x 96	2½	15	17	.0540	80
48 x 96	3	14	16	.0648— $\frac{1}{16}$ +	96
48 x 96	3½	13	15	.0756— $\frac{3}{64}$ -	112
48 x 96	4	11	14	.0864	128
48 x 96	4½	10	13	.0972— $\frac{3}{32}$ +	144
48 x 96	5	10	12	.1080— $\frac{7}{64}$ +	160
48 x 96	6	8	10	.1296— $\frac{1}{8}$ +	192

See pages 112 and 113 for extras over Base Price.

See page 255 for complete Table of Weights. (Continued on next page.)

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA HOT ROLLED PLAIN BRAZIERS' COPPER—Continued
Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Weight in Lbs. per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equivalent & Nearest Fraction of an Inch	Weight of Full Sheet in Lbs.
48 x 120	2	17	19	.0432	80
48 x 120	2½	15	17	.0540	100
48 x 120	3	14	16	.0648— $\frac{1}{16}$ +	120
48 x 120	3½	13	15	.0756— $\frac{5}{64}$ -	140
48 x 120	4	11	14	.0864	160
48 x 120	4½	10	13	.0972— $\frac{3}{32}$ +	180
48 x 120	5	10	12	.1080— $\frac{7}{64}$ +	200
48 x 120	5½	9	11	.1188	220
48 x 120	6	8	10	.1296— $\frac{1}{8}$ +	240
60 x 120	3	14	16	.0648— $\frac{1}{16}$ +	150
60 x 120	3½	13	15	.0756— $\frac{5}{64}$ -	175
60 x 120	4	11	14	.0864	200
60 x 120	4½	10	13	.0972— $\frac{3}{32}$ +	225
60 x 120	5	10	12	.1080— $\frac{7}{64}$ +	250
60 x 120	5½	9	11	.1188	275
60 x 120	6	8	10	.1296— $\frac{1}{8}$ +	300
72 x 120	3	14	16	.0648— $\frac{1}{16}$ +	180
72 x 120	4	11	14	.0864	240
72 x 120	5	10	12	.1080— $\frac{7}{64}$ +	300
72 x 120	6	8	10	.1296— $\frac{1}{8}$ +	360
72 x 120	7	7	9	.1512— $\frac{5}{32}$ +	420
72 x 120	8	5	8	.1728— $\frac{11}{64}$ -	480
72 x 144	4	11	14	.0864	288
72 x 144	5	10	12	.1080— $\frac{7}{64}$ +	360
72 x 144	6	8	10	.1296— $\frac{1}{8}$ +	432

ANACONDA COLD ROLLED COPPER SHEET

COPPERSMITHS' SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Weight in Lbs. per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equivalent	Weight per Full Sheet in Lbs.
48 x 120	2½	15	17	.0540	100
36 x 96	3	14	16	.0648	72
48 x 120	3	14	16	.0648	120
60 x 144	3	14	16	.0648	180
60 x 144	4	11	14	.0864	240
60 x 144	5	10	12	.1080	300

Variations from above weights must be expected in practice.

See pages 112 and 113 for extras over Base Prices.

See page 255 for complete Table of Weights.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA COLD ROLLED COPPER SHEET

Patent Leveled in Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
14 x 48	14	25	26	.0189	4.08
14 x 48	16	23	24	.0216	4.67
20 x 96	14	25	26	.0189	11.67
20 x 96	16	23	24	.0216	13.34
24 x 48	14	25	26	.0189	7.00
24 x 48	16	23	24	.0216	8.00
24 x 96	14	25	26	.0189	14.00
24 x 96	16	23	24	.0216	16.00
24 x 96	18	22	23	.0243	18.00
24 x 96	20	21	22	.0270	20.00
26 x 96	14	25	26	.0189	15.17
26 x 96	16	23	24	.0216	17.34
28 x 96	14	25	26	.0189	16.33
28 x 96	16	23	24	.0216	18.67
30 x 60	14	25	26	.0189	10.94
30 x 60	16	23	24	.0216	12.50
30 x 60	18	22	23	.0243	14.07
30 x 60	20	21	22	.0270	15.63
30 x 60	24	20	21	.0324	18.75
30 x 96	14	25	26	.0189	17.50
30 x 96	16	23	24	.0216	20.00
30 x 96	18	22	23	.0243	22.50
30 x 96	20	21	22	.0270	25.00
30 x 96	24	20	21	.0324	30.00
30 x 96	32	17	19	.0432	40.00
32 x 96	16	23	24	.0216	21.33
34 x 96	16	23	24	.0216	22.67
36 x 96	14	25	26	.0189	21.00
36 x 96	16	23	24	.0216	24.00
36 x 96	18	22	23	.0243	27.00
36 x 96	20	21	22	.0270	30.00
36 x 96	24	20	21	.0324	36.00
36 x 96	28	19	20	.0378	42.00
36 x 96	32	17	19	.0432	48.00
36 x 120	16	23	24	.0216	30.00

For larger sizes from 2½ lbs. to 5 lbs. see page 121.

Sizes not listed made to order promptly.

Variations from above weights must be expected in practice.

See pages 112 and 113 for extras over Base Price.

See page 255 for complete Table of Weights.



ANACONDA COLD ROLLED COPPER SHEET

TINNED ONE SIDE

Patent Leveled in Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubs' Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
14 x 48	14	25	26	.0189	4.08
14 x 48	16	23	24	.0216	4.67
14 x 60	14	25	26	.0189	5.10
14 x 60	16	23	24	.0216	5.84
24 x 48	14	25	26	.0189	7.00
24 x 48	16	23	24	.0216	8.00
24 x 48	18	22	23	.0243	9.00
24 x 60	14	25	26	.0189	8.75
24 x 60	16	23	24	.0216	10.00
30 x 60	14	25	26	.0189	10.94
30 x 60	16	23	24	.0216	12.50
30 x 60	18	22	23	.0243	14.07
30 x 60	20	21	22	.0270	15.63
30 x 60	24	20	21	.0324	18.75
30 x 96	14	25	26	.0189	17.50
30 x 96	16	23	24	.0216	20.00
30 x 96	18	22	23	.0243	22.50
30 x 96	20	21	22	.0270	25.00
30 x 96	24	20	21	.0324	30.00
30 x 96	28	19	20	.0378	35.00
30 x 96	32	17	19	.0432	40.00
36 x 96	14	25	26	.0189	21.00
36 x 96	16	23	24	.0216	24.00
36 x 96	18	22	23	.0243	27.00
36 x 96	20	21	22	.0270	30.00
36 x 96	24	20	21	.0324	36.00
36 x 96	28	19	20	.0378	42.00
36 x 96	32	17	19	.0432	48.00

Other sizes not listed made to order promptly.

Variations from above weights must be expected in practice.

See pages 112, 113 and 114 for extras over Base Price.

See page 255 for complete Table of Weights.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA COLD ROLLED COPPER SHEET

TINNED AND POLISHED

In Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubbs' Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
24 x 48	16	23	24	.0216	8.00
24 x 48	20	21	22	.0243	10.00
30 x 60	14	25	26	.0189	10.94
30 x 60	16	23	24	.0216	12.50
30 x 60	20	21	22	.0270	15.63
30 x 96	14	25	26	.0189	17.50
30 x 96	16	23	24	.0216	20.00
30 x 96	18	22	23	.0243	22.50
30 x 96	20	21	22	.0270	25.00
30 x 96	24	20	21	.0324	30.00

ANACONDA COLD ROLLED ANNEALED SHEET COPPER

FOR SPINNING

In Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubbs' Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
36 x 96	16	23	24	.0216	24
36 x 96	18	22	23	.0243	27
36 x 96	20	21	22	.0270	30
36 x 96	24	20	21	.0324	36
36 x 96	32	17	19	.0432	48

Variations from above weights must be expected in practice.

See pages 112, 113 and 114 for extras over Base Price.

See page 255 for complete Table of Weights.



ANACONDA LEAD COATED SHEET COPPER

Both Soft and Cold Rolled

ROUGH LEAD COATED ONE SIDE

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheet Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubs' Gauge	Decimal Equivalent Inches	*Weight per Full Sheet in Lbs.
30 x 96	16	23	24	.0216	20
36 x 96	16	23	24	.0216	24
24 x 96	18	22	23	.0243	18
30 x 96	18	22	23	.0243	22 ½
36 x 96	18	22	23	.0243	27

Also 36" x 96" 16 oz. rough lead coated both sides.

*Indicates weight before lead coating.

Average weight of lead coating one side is approximately 24 to 27 pounds per 100 square feet.

Sheet copper can also be lead coated smooth one side; rough both sides or rough one side, smooth on the other. This practice is subject to change.

ANACONDA COLD ROLLED COPPER SHEET

Patent Leveled

POLISHED ONE SIDE

In Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stubs' Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
30 x 60	14	25	26	.0189	10.94
30 x 60	16	23	24	.0216	12.50
30 x 96	14	25	26	.0189	17.50
36 x 96	14	25	26	.0189	21.00
30 x 96	16	23	24	.0216	20.00
36 x 96	16	23	24	.0216	24.00

Variations from above weights must be expected in practice.

See pages 112, 113 and 114 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA SOFT COPPER SHEET

TINNED ONE SIDE

In Flat Sheets

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Nearest Brown & Sharpe's Gauge	Nearest Stub's Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
30 x 96	14	25	26	.0189	17.50
30 x 96	16	23	24	.0216	20.00
36 x 96	16	23	24	.0216	24.00

ANACONDA COLD ROLLED ECONOMY STRIP COPPER

RESQUARED LEVELED FLAT SHEETS

For Conductor Pipes—Leaders—Gutters—Valleys—Flashings

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Brown & Sharpe's Gauge	Decimal Equivalent Inches	Weight per Full Sheet in Lbs.
10 x 96	16	23	.0216	6.67
12 x 96	16	23	.0216	8.00
14 x 96	16	23	.0216	9.33
15 x 96	16	23	.0216	10.00
8½ x 120	16	23	.0216	7.08
9⅞ x 120	16	23	.0216	8.23
10 x 120	16	23	.0216	8.33
11¾ x 120	16	23	.0216	9.75
12 x 120	16	23	.0216	10.00

Variations from above weights must be expected in practice.

See pages 112, 114 and 117 for extras over Base Price.

See page 255 for complete Table of Weights.



ANACONDA SPRING BRUSH COPPER

In Rolls About 25 Pounds

Immediate Shipment from Our Warehouse Stocks

8" wide—B. & S. Gauges 20-22-24-26-28-30-32-34 and 36.

Special sizes made to order.

ANACONDA SOFT COPPER SHEATHING

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Decimal Part of an Inch	Nearest Stubbs' Gauge	Weight per Full Sheet in Lbs.	Sheets per Case	Weight per Case (Net)
14 x 48	10	.0135	29	2.92	200	584
14 x 48	12	.0162	27	3.50	175	612
14 x 48	14	.0189	26	4.08	150	612
14 x 48	16	.0216	24	4.67	125	584
14 x 48	18	.0243	23	5.25	115	604
14 x 48	20	.0270	22	5.83	100	583
14 x 48	24	.0324	21	7.00	85	595
14 x 48	28	.0378	20	8.19	75	614
14 x 48	32	.0432	19	9.33	62	575

Variations from above weights must be expected in practice.

See pages 112 and 113 for extras over Base Price.

See page 255 for complete Table of Weights.

CUT COPPER SHEATHING NAILS

and

COPPER STEM NAILS

100 lb. Kegs or 5 lb. Boxes. See page 222.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA NICKEL SILVER

Sheets Rolls Strips

Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

		Wider than and including	$\frac{1}{8}$	In. $\frac{1}{4}$	In. $\frac{3}{8}$	In. $\frac{1}{2}$	In. $\frac{5}{8}$	In. $\frac{3}{4}$	In. $\frac{7}{8}$	In. 1	In. 1 1/8	In. 1 1/4	In. 1 1/2	In. 1 3/4	In. 1 7/8	In. 2	In. 2 1/8	In. 2 1/4	In. 2 1/2	In. 2 3/4	In. 2 7/8	In. 3	In. 3 1/8	In. 3 1/4
No. 20	.0319	6	2	1	B.	2	4	6	8	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32
21	.0284	6 1/2	2 1/2	1 1/2	2 1/2	4 1/2	6 1/2	8 1/2	10 1/2	12 1/2	13 1/2	14 1/2	15 1/2	16 1/2	18 1/2	20 1/2	22 1/2	24 1/2	26 1/2	28 1/2	30 1/2	32 1/2		
22	.0253	7	3	2	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33			
23	.0225	7 1/2	3 1/2	2 1/2	1 1/2	3 1/2	5 1/2	7 1/2	9 1/2	11 1/2	13 1/2	15 1/2	17 1/2	19 1/2	21 1/2	23 1/2	25 1/2	27 1/2	29 1/2	31 1/2	33 1/2			
24	.0201	8	4	3	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34			
25	.0179	8 1/2	4 1/2	3 1/2	2 1/2	4 1/2	6 1/2	8 1/2	10 1/2	12 1/2	14 1/2	16 1/2	18 1/2	20 1/2	22 1/2	24 1/2	26 1/2	28 1/2	30 1/2	32 1/2	34 1/2			
26	.0159	9	5	4	3	5	7	9	11	13	15	17	19	21										
27	.0142	9 1/2	5 1/2	4 1/2	3 1/2	5 1/2	7 1/2	9 1/2	11 1/2	13 1/2	15 1/2	17 1/2	19 1/2	21 1/2										
28	.0126	10	6	5	4	6	8	10	12	14	16	18	20	22										
29	.0112	16 1/2	7 1/2	6	4 1/2	6 1/2	8 1/2	10 1/2	12 1/2															
30	.0100	17	8	6 1/2	5	7	9	11	13															
31	.0089	18 1/2	9 1/2	8	6 1/2	8 1/2	10 1/2																	
32	.0079	20	11	9 1/2	8	10	12																	
33	.0071	27 1/2	15 1/2	12 1/2	9 1/2	11 1/2																		
34	.0063	30	18	15	12	14																		
35	.0056	32 1/2	20 1/2	17 1/2	14 1/2																			
36	.0050	35	23	20	17																			

**Brown & Sharpe's
Gauge the Standard
All Qualities 5% to 30%**

Nickel Silver Sheet wider than $\frac{1}{2}$ " thicker than No. 20; also widths over $\frac{1}{4}$ " to $\frac{1}{2}$ " wide inc., No. 16 to and inc. No. 19, priced the same as No. 20.

Nickel Silver Sheet wider than $\frac{1}{4}$ " to $\frac{1}{2}$ " inc., No. 8 to and inc. No. 15—2c advance over price of No. 20.

Nickel Silver Sheet, thicker, thinner or wider than listed above, prices quoted upon application.

Nickel Silver Sheet heavier than No. 4 gauge, listed and charged as Sawed Metal whether sheared, slit or sawed.

Nickel Silver Sheet between gauges takes price of nearest gauge.

Nickel Silver Circles, prices quoted upon application.

Sawing Nickel Silver, double the extras for sawing Brass, for both width and length.

Nickel Silver Sheet, cut to uniform specific lengths, same advances as for cutting Sheet Brass.

POLISHED NICKEL SILVER SHEETS

Particular care is taken to produce Sheets having a commercially perfect surface free from defects.

All such Sheets are patent levelled before being polished and are, therefore, flat without buckles or waves.

Narrow Sheets required with exactly parallel edges should be so specified.

Extras for items of less than 200 lbs., see page No. 99.

**ANACONDA 18% NICKEL SILVER SHEETS**

QUARTER HARD—GRADE "A"
In Flat Sheets 8 to 12 Feet Long
 Polished One Side
 Standard Sizes for Prompt Shipment

Size of Sheets Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.	Weight per Sheet 8 Ft. Long	Size of Sheets Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.	Weight per Sheet 8 Ft. Long
12	20	.0319	1.455	11.65	24	24	.0201	.915	14.60
12	22	.0253	1.154	9.25	24	26	.0159	.725	11.60
12	24	.0201	.915	7.30	26	20	.0319	1.455	25.20
18	20	.0319	1.455	17.50	26	22	.0253	1.154	19.96
18	22	.0253	1.154	13.85	26	24	.0201	.915	15.85
18	24	.0201	.915	10.95	30	20	.0319	1.455	29.10
20	20	.0319	1.455	19.35	30	22	.0253	1.154	23.10
20	22	.0253	1.154	15.40	30	24	.0201	.915	18.30
20	24	.0201	.915	12.15	30	26	.0159	.725	14.50
20	26	.0159	.725	9.64	36	20	.0319	1.455	34.90
24	20	.0319	1.455	23.30	36	22	.0253	1.154	27.70
24	22	.0253	1.154	18.50	36	24	.0201	.915	21.95

Monel Metal Rivets and Pure Nickel Rivets are available for use with the above. See pages 82 and 84.

ANACONDA 18% NICKEL SILVER IN ROLLS

SOFT—GRADE "A"
Spinning and Stamping Quality
 Standard Sizes Rolls about 40 Pounds

Width in Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.	Width in Inches	Thickness Brown & Sharpe's Gauge	Decimal Equivalent in Inches	Weight per Sq. Ft.
6	14	.0640	2.917	6	24	.0201	.915
6	15	.0570	2.598	6	26	.0159	.725
6	16	.0508	2.314	6	27	.0141	.646
6	17	.0452	2.060	6	28	.0126	.575
6	18	.0403	1.835	6	30	.0100	.456
6	19	.0358	1.634	6	32	.0079	.362
6	20	.0284	1.455	6	34	.0063	.287
6	22	.0253	1.154	6	36	.0050	.227

Sizes not listed in above tables can be made promptly

Variations from above weights must be expected in practice.

See page 128 for extras over Base Price.

See page 254 for complete Table of Weights.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA MUNTZ METAL, NAVAL BRASS AND TOBIN BRONZE SHEETS AND PLATES

The Longest Dimension of any Sheet shall be Considered its Length

Base Price Quoted upon Application

Extras over Base Prices, Cents per Pound

OUNCES PER SQUARE FOOT						64 oz. to 1/8"	48 oz. to 64 oz.	32 oz. to 48 oz.	24 oz. to 32 oz.	20 oz. to 24 oz.
EQUIVALENT IN INCHES		1/2 and Over	3/8 to 1/2	1/4 to 3/8	1/8 to 1/4	Inc. .0915 to 1/8	Inc. .0686 to .0915	Inc. .0458 to .0686	Inc. .0343 to .0458	Inc. .0286 to .0343
SIZE OF SHEETS IN INCHES										
Widths	Lengths									
Over 4 Not over 20	Not over 48	Base	Base	Base	Base	Base	Base	Base	Base	Base
	Over 48 Not over 72	Base	Base	Base	Base	Base	Base	Base	Base	1/2
	Over 72 Not over 96	Base	Base	Base	Base	Base	Base	Base	Base	1
	Over 96 Not over 120	Base	Base	Base	Base	Base	Base	Base	1/2	1 2
	Over 120 Not over 180	Base	Base	Base	Base	Base	Base			
Over 20 Not over 24	Not over 48	Base	Base	Base	Base	Base	Base	Base	Base	1/2
	Over 48 Not over 72	Base	Base	Base	Base	Base	Base	Base	1/2	1 1/2
	Over 72 Not over 96	Base	Base	Base	Base	Base	Base	Base	1 1/2	2 1/2
	Over 96 Not over 120	Base	Base	Base	Base	Base	1	1 1/2	2 1/2	3 1/2
	Over 120 Not over 180	Base	Base	Base	Base	Base	2			
Over 24 Not over 28	Not over 48	Base	Base	Base	Base	Base	Base	1/2	1	2
	Over 48 Not over 72	Base	Base	Base	Base	Base	Base	1	2	3
	Over 72 Not over 96	Base	Base	Base	Base	Base	2	3	4	6
	Over 96 Not over 120	Base	Base	Base	Base	Base	1	3	5	
	Over 120 Not over 180	Base	Base	Base	Base	Base	3	5		
Over 28 Not over 32	Not over 48	Base	Base	Base	Base	Base	1/2	1	3	4
	Over 48 Not over 72	Base	Base	Base	Base	Base	1	3	4	5
	Over 72 Not over 96	Base	Base	Base	Base	Base	1	3	5	6
	Over 96 Not over 120	Base	Base	Base	Base	Base	3	5		
	Over 120 Not over 180	Base	Base	Base	Base	Base	3			
Over 32 Not over 36	Not over 48	Base	Base	Base	Base	Base	2	4	5	6
	Over 48 Not over 72	Base	Base	Base	Base	Base	3	5	6	7
	Over 72 Not over 96	Base	Base	Base	Base	Base	3	5	7	8
	Over 96 Not over 120	Base	Base	Base	Base	Base	3	5	7	9
	Over 120 Not over 180	Base	Base	Base	Base	Base	5			
Over 36 Not over 40	Not over 48	Base	Base	Base	Base	Base	2	3	5	7
	Over 48 Not over 72	Base	Base	Base	Base	Base	3	5	6	8
	Over 72 Not over 96	Base	Base	Base	Base	Base	3	5	7	9
	Over 96 Not over 120	Base	Base	Base	Base	Base	5	7		
	Over 120 Not over 180	Base	Base	Base	Base	Base				
Over 40 Not over 44	Not over 48	Base	Base	Base	Base	Base	2	3	5	
	Over 48 Not over 72	Base	Base	Base	Base	Base	3	5		
	Over 72 Not over 96	Base	Base	Base	Base	Base	3	6		
	Over 96 Not over 120	Base	Base	Base	Base	Base	3	6		
	Over 120 Not over 180	Base	Base	Base	Base	Base	5			

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA MUNTZ METAL, NAVAL BRASS AND TOBIN BRONZE
SHEETS AND PLATES—Continued

OUNCES PER SQUARE FOOT						64 oz. to to 1/8"	48 oz. to to 64 oz.	32 oz. to to 48 oz.	24 oz. to to 32 oz.	20 oz. to to 24 oz.
EQUIVALENT IN INCHES		1/2 and Over	3/8 to 1/2	1/4 to 3/8	1/8 to 1/4	Inc. .0915 to 1/8	Inc. .0686 to .0915	Inc. .0458 to .0686	Inc. .0343 to .0458	Inc. .0286 to .0343
SIZE OF SHEETS IN INCHES										
Widths	Lengths									
	Not over 72	Base	Base	Base	2	4				
Over 44	Over 72 Not over 96	Base	Base	2	4					
Not over 48	Over 96 Not over 120	Base	Base	4						
	Over 120 Not over 180	Base	Base	6						
Over 48	Not over 96	2	2	3						
	Over 96 Not over 120	2	2	5						
	Over 120 Not over 180	2	3	7						
Not over 60	Not over 96	2	3	5						
	Over 96 Not over 144	2	4	8						
Over 60	Not over 96	2	3	5						
Not over 84	Over 96 Not over 144	2	4	8						
Over 84	Not over 144	2	6							
Not over 110										

All Sheets shorter than 12 in., or longer than 180 in., prices quoted upon application.
Sheets lighter than 20 oz., prices quoted upon application.
Extra Charges for Items of less than 200 lbs., see page 99.

COLD ROLLING

14 oz. (.0189) per sq. ft. and heavier.....	Sheets 3c lb.	Circles 4 1/2 c lb.
Lighter than 14 oz.....	6c lb.	8c lb.

Sheets Prepared Suitable for Polishing, cold rolling charge, 2c per pound extra over above prices.

Cold Rolled and Annealed Sheets and Circles take the same price as Cold or Hard Rolled Sheets or Circles of corresponding dimensions and thickness.

POLISHING

20 in. wide and narrower, 8c per square foot over price for Cold Rolled Sheets.
Over 20 in. wide, 10c per sq. foot over price for Cold Rolled Sheets.

TINNING

One side.....	8c per sq. foot
Both sides.....	Double the sq. feet

CIRCLES

Not less than 12 in. diameter, 6c lb. over price of Sheets from which they are cut.
Less than 12 in. diameter.....Special Prices

SAWING

To the price of Sheared Metal of corresponding gauge, width and length, add for sawing:
Widths inc. 4 in. to 6 in.....4c advance
Widths over 6 in.....2c advance

All half hard, hard or cold rolled and annealed sheets and strips No. 4 B. & S. (.204) thick or heavier, priced as Sawed Metal whether sheared, slit or sawed.

CONDENSER HEAD PLATES, CIRCLES, ETC.

1/2 in. and thicker, prices quoted upon application

SEGMENTS AND PATTERN SHEETS

Prices quoted upon application

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

ANACONDA YELLOW METAL SHEATHING

STANDARD SIZES

Immediate Shipment from Warehouse Stocks

Size of Sheets Inches	Ounces per Sq. Ft.	Decimal Part of an Inch	Nearest Brown & Sharpe's Gauge	Weight per Full Sheet in Lbs.	Sheets per Case	Weight per Case (Net)
14 x 48	10 oz.	.0135	27	2.92	200	584
14 x 48	12 "	.0162	26	3.50	175	612
14 x 48	14 "	.0189	25	4.08	150	612
14 x 48	16 "	.0216	23	4.67	125	584
14 x 48	18 "	.0243	22	5.25	115	604
14 x 48	20 "	.0270	21	5.83	100	583
14 x 48	24 "	.0324	20	7.00	85	594
14 x 48	28 "	.0378	19	8.19	75	614
14 x 48	32 "	.0432	17	9.33	62	575

Variations from above weights must be expected in practice.

See page 130 for extras over Base Price.

CUT YELLOW METAL NAILS

Sheathing & Stem & Slating

for use with the above Sheathing.

Sheathing Nails in sizes $\frac{3}{4}$ " to 3" inclusive. Stem Nails $1\frac{1}{4}$ " to 3" inclusive and Slating Nails $1\frac{1}{4}$ " to 2" inclusive. See page 222 for List Prices.

**ANACONDA COMMERCIAL ARCHITECTURAL BRONZE
AND GILDING METAL SHEETS**

All Standard Sizes Furnished Promptly. Special Sizes Made to Order. For Dimensions and List Extras, see page 100. Base Price Quoted upon Application.

SHEET ZINC

In All Standard Dimensions, Also

Special Sheets for Lithographers', Engravers' and Etchers' use, Rolled Zinc Battery and Boiler Plates, Cut Zinc Sheathing, Stem and Slating Nails. For Prompt Shipment. Prices Quoted upon Application.

SHEET LEAD

Rolled to All Standard Dimensions or to Special Sizes for

Chemical Works—Acid Chambers—Storage Battery Tanks—Chlorination Tubs—Oil Refineries—Electrical Purposes—Roofers—Builders—Laboratories—Plumbers. Prices Quoted upon Application.

ALUMINUM SHEET

Soft in rolls about 25 to 40 pounds. Soft or Hard Tempers in Flat Sheets. Standard Sizes Promptly. Other Dimensions or Sizes Made for Prompt Delivery. Prices Quoted upon Application.

PURE TIN SHEET

Standard Sizes from Mill Promptly. Special Requirements Made to Order. Prices Quoted upon Application.

COPPER ROOFING ACCESSORIES

MADE OF ANACONDA PRODUCTS

LEADERS

ELBOWS

SHOES

STRAPS

HOOKS

HEADS

STRAINERS

SCREEN

GUTTERS

HANGERS

SPIKES

MITRES

ENDS

OUTLETS

CUT-OFFS

SOLDER

SHINGLES

NAILS

STORM PINS

RIDGE ROLL CLIPS

SNOW GUARDS

SOLDERING COPPERS

TINNERS' RIVETS

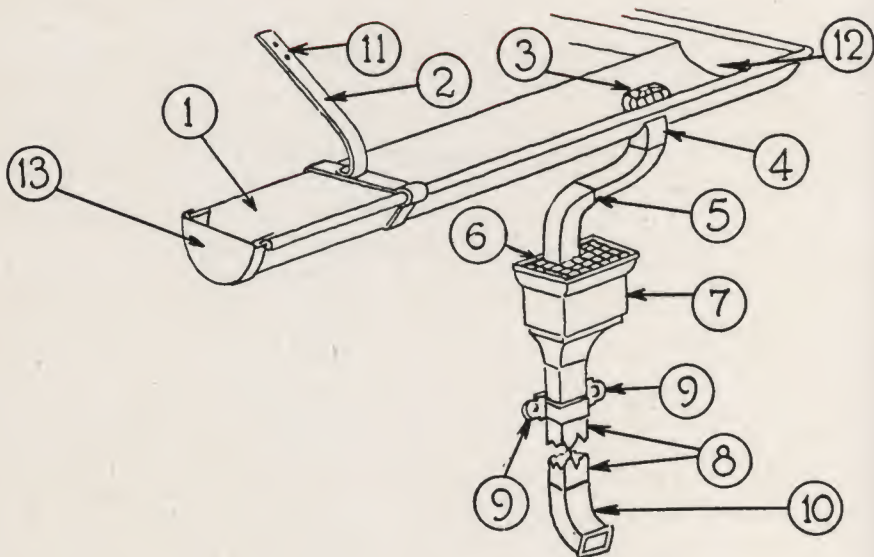
BOLTS AND NUTS

CIRCLES AND SHANKS

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ROOFING ACCESSORIES



- | | |
|---------------------|------------------|
| 1. EAVES TROUGH | 7. LEADER HEAD |
| OR GUTTER. | 8. LEADER OR |
| 2. GUTTER HANGER. | CONDUCTOR. |
| 3. BASKET STRAINER. | 9. LEADER STRAP. |
| 4. GUTTER OUTLET. | 10. SHOE. |
| 5. ELBOW. | 11. NAILS. |
| 6. SCREEN. | 12. MITRE. |
| 13. CAP. | |

The above set-up will help you in ordering materials listed on the following pages.

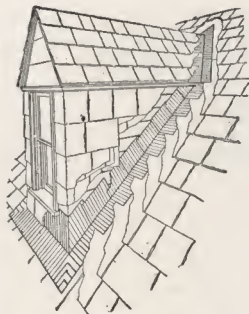


FLASHINGS, GUTTERS AND DOWNSPOUTS

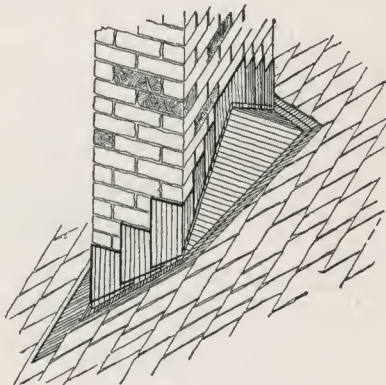
Gutters and downspouts are just as important as the roof, and just as much attention must be paid to the proper selection of these as to the roof covering. They have to undergo severe service year in and year out. In the winter snow and ice block them; in the summer heavy showers flood them. They must be of ample size and strength to meet the test of service. Copper again measures up as no other material can, and has become the standard by which all others are judged. Metals that rust become useless as gutters and downspouts. Their replacement is a constant source of annoyance and expense. Non-rusting Copper gutters and downspouts defy corrosion, retain their full strength permanently and last a lifetime.

They are also the marks of the well-built house—an advertisement of the fact that the wise home-builder spent a little more money at the beginning to save a lot more money in the end.

An ordinary roof is only as strong as its weakest part, the joints. Flashed with Copper the joints become permanently strong defenses against the inroads of the elements.



Dormer Flashings



Chimney Flashings

It is estimated that an average of 250 feet of leaders and gutters are used on the typical American home. Made of Copper, they cost little more than if substitutes are used—a small item in the total cost of building—and Copper lasts as long as the building stands.

On the other hand, the ordinary metal gutters and spouts serve you well if they last three years. The cost of erection is the same in both cases, and the difference in cost of the metal is absorbed before the first replacement of the rusty, wasteful gutters and downspouts is completed.

Should the amount of money at your disposal not permit of a Copper roof on your home, prudence and economy at once suggest Copper for flashings, ridge rolls, gutters and downspouts. They are the parts of any roof that constantly give trouble and cause new expense if not made of non-rusting Copper.

Saving and long lasting service are present wherever Copper is used. They explain why Copper is cheaper—you pay for it only once.

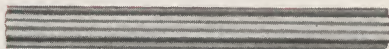
COPPER is Cheaper—You pay for it only ONCE

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



COPPER LEADER AND GUTTER

MADE OF ANACONDA COPPER



Round Corrugated Copper Leader



Round Plain Copper Leader



Square Corrugated Copper Leader

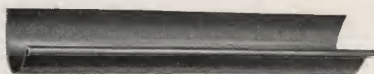
COPPER LEADER

Standard Sizes

Immediate Shipment from Our Warehouse Stocks

Size	List Price per Lineal Foot		
	Plain Round	Round Corrugated	Square Corrugated
2"—16 oz.	\$0.30	\$0.30	\$0.31
3"—16 oz.	.36	.36	.40
4"—16 oz.	.51	.51	.53
5"—16 oz.	.69	.69	.75
6"—16 oz.	.90	.90	...

Discounts quoted upon application.



Single Bead Lap Joint Copper Gutter

COPPER GUTTER

Stock Sizes

Ready to Ship from Our Warehouse Stocks

Size	List Price per Lineal Foot			
	Single Bead Lap Joint	Single Bead Slip Joint	Double Bead Lap Joint	Double Bead Slip Joint
3"—16 oz.	\$0.26	\$0.29	\$0.32	\$0.35
4"—16 oz.	.32	.35	.40	.43
5"—16 oz.	.36	.39	.45	.48
6"—16 oz.	.44	.47	.55	.58
7"—16 oz.	.54	.57	.64	.67
8"—16 oz.	.63	.66	.75	.78
9"—16 oz.	.80	.83	.92	.95
10"—16 oz.	.95	.98	1.07	1.10

Discounts quoted upon application.

SPECIAL "OG" COPPER GUTTER



"OG" Copper Gutter

"OG" Gutter can be supplied promptly
in many styles and sizes to suit
your requirements

Prices Quoted upon Application



COPPER ROOFING ACCESSORIES

MADE OF ANACONDA COPPER



Plain Round



Round Corrugated



Square Corrugated



Round Corrugated Shoe

COPPER ELBOWS AND SHOES

STANDARD SIZES

Immediate Shipment from Our Warehouse Stocks

Size	LIST PRICE PER PIECE					
	Plain Round		Round Corrugated		Square Corrugated	
	Elbows	Shoes	Elbows	Shoes	Elbows	Shoes
2" — 16 ounces	\$0.75	\$0.85	\$0.75	\$0.85	\$0.90	\$1.05
3" — 16 ounces	1.00	1.10	1.00	1.10	1.20	1.35
4" — 16 ounces	1.50	1.65	1.50	1.65	1.80	2.00
5" — 16 ounces	2.25	2.50	2.25	2.50	2.75	3.00
6" — 16 ounces	3.15	3.50	3.15	3.50	....	....

Style "A"—All Elbows Furnished in 45° (No. 1), 60° (No. 2), 75° (No. 3)
Shoes Come in 90° (No. 4). (See above illustrations)

Style "B"—Elbows in 75° (No. 3). 3" and 4"

COPPER WIRE STRAINERS

STOCK SIZES

Immediate Shipment from Our Warehouse Stocks



Round Strainer

Size	LIST PRICE PER DOZEN			
	Round		Square	
2" No. 17 Gauge	\$1.80		2" x 3" No. 17 Ga.	\$4.00
3" No. 17 Gauge	2.90		3" x 4" No. 16 Ga.	8.00
4" No. 16 Gauge	4.20		4" x 5" No. 15 Ga.	10.00
5" No. 15 Gauge	7.20		.....	.....
6" No. 15 Gauge	8.25		.....	.....



Square Strainer

Copper Strainers can be made to any specification very promptly.
Discounts Quoted upon Application.



Special Leader Head



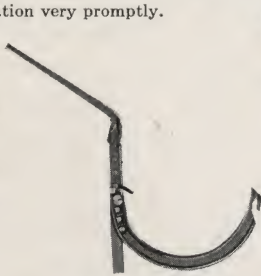
Leader Head

COPPER LEADER HEADS

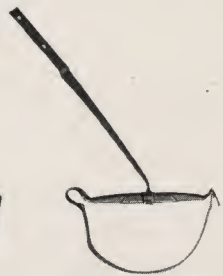
ALL DESCRIPTIONS
Prompt Shipment

COPPER HANGERS

For 4", 5" and 6" Gutter
Immediate Shipment



Circle and Shank



Gutter Hanger

COPPER AND BRONZE LEADER HOOKS

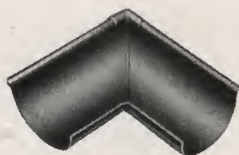
FOR WOOD OR BRICK DRIVE
All Standard Sizes Immediately, also
STAMPED COPPER CIRCLES
AND SHANKS
To Fit Half Round Gutters
Special Prices upon Application

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



COPPER ROOFING ACCESSORIES

MADE OF ANACONDA COPPER



Outside Corner
Copper Gutter Mitre

COPPER MITRES

DOUBLE SEAMED—REINFORCED

For Standard Half Round Gutter
Outside or Inside Construction

Size	LIST PRICE PER DOZEN			
	Single Bead Lap Joint	Double Bead Lap Joint	Single Bead Slip Joint	Double Bead Slip Joint
4" — 16 ounces	\$11.40	\$14.40	\$14.40	\$17.40
5" — 16 ounces	13.20	16.20	16.20	19.20
6" — 16 ounces	20.04	23.04	23.04	26.04

For other sizes Prices Quoted upon Application.



Cap



Outlet

COPPER GUTTER ENDS CAPS AND OUTLETS

Stock Sizes

For Half Round Gutter

Size	LIST PRICE PER DOZEN					
	Caps only	Outlets only	End Pieces with Cap and Outlet		End Pieces with Outlet—No Cap	
			Single Bead	Double Bead	Single Bead	Double Bead
2" — 16 ounces	....	\$3.60	....	....	....	....
3" — 16 ounces	....	4.80	....	....	....	....
4" — 16 ounces	\$4.80	6.00	\$17.40	\$20.40	\$12.60	\$15.60
5" — 16 ounces	6.00	7.20	19.20	22.20	13.20	16.20
6" — 16 ounces	6.60	8.40	22.20	25.20	15.60	18.60

Sizes not Listed Made to Order Promptly.
Discounts Quoted upon Application.

Immediate Shipment from Our Warehouse Stocks.

SOLDERING COPPERS—BAR SOLDER BRASS AND COPPER TINNERS' RIVETS BRASS CORNICE BOLTS AND NUTS

For Immediate Shipment
See Accessories Division



Snow Guard

COPPER SNOW GUARDS

Single and Double Loop or to Specification
Prices upon Request

COPPER LEADER STRAPS

For Round, Plain and
Corrugated and Square
Corrugated Leader



End Piece



Leader Strap



End Piece

Shipment Made from Our Warehouse Stocks
Prices upon Application.



MISCELLANEOUS COPPER ROOFING MATERIALS

For Immediate Shipment from Our Warehouse Stocks

COPPER WIRE CLOTH

For Skylights and Leader Heads

$\frac{1}{2}$ ", $\frac{3}{8}$ " and $\frac{1}{4}$ " Mesh. 36" Wide for Stock Delivery

Other Widths or Meshes made Promptly

For Prices see pages 218 and 220



Copper Shingle

COPPER SHINGLES AND TILE

In any Design made to Order

Quotations on Request

COPPER SHINGLE NAILS

Immediate Shipment

2d (1" No. 13 and 15). 3d ($\frac{1}{4}$ " No. 11 and 14). 4d ($\frac{1}{2}$ " No. 11 and 13)



Copper Spanish Tile



Storm Nail

COPPER STORM NAILS

For Laying Asbestos Shingles

Immediate Shipment

$\frac{3}{4}$ " Long No. 14 Gauge
(.065) Octagon Head

COPPER SLATING NAILS

Large Heads

All Standard Sizes
Stock Shipment

For Price and Sizes refer to
page 222



Slating Nail



Ridge Roll Clip

COPPER RIDGE ROLL CLIPS

Standard Size for Ridge Rolls

Stock Shipment

$\frac{5}{8}$ " wide x $3\frac{1}{8}$ " long No. 25 Stubs' Gauge
Copper Ridge Roll. Prices on Request

CUT COPPER ROOFING NAILS

Sizes $1\frac{1}{4}$ " and $1\frac{1}{2}$ "

COPPER GUTTER SPIKES

Flat or Round Head

7" long x $\frac{3}{16}$ " diameter

See page 222 of Accessories Division



COPPER PURLIN NAILS



Made to Order

Prices Quoted upon Receipt of Specifications

for MODERN

QUALITY

there is nothing which will take the place of the

*The New York Life
Insurance Building*

CONTAINS

Over 500,000 lbs. Brass
Pipe.

Over 30,000 lbs. of Cop-
per in its boilers alone.

Over 1,000,000 lbs. of
Copper and Bronze in
its roofing, hardware,
doors and general ar-
chitectural metal work.

More than 100,000 lbs.
of Monel Metal in its
kitchen equipment.



Building Construction

METALS OF INDUSTRY

THE time is coming *and coming SOON* when the reputable builder will refuse to install any other than the *rustless metals* in the home, just as all good builders now install *Copper, Brass, Bronze* and *Monel* in the large industrial and office buildings. The most forward-looking are now using—

Copper Flashings

Copper Leaders & Gutters

Brass Pipe in Plumbing

Copper Hot Water Boilers

Brass & Bronze Hardware

Monel Metal Sinks, Table

Tops & Kitchen Trim

Bronze Window Screens



WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MEMORANDA
BASE PRICES
ANACONDA TUBING

	Date	Date	Date	Date	Date	Date	Date
MATERIAL							
Seamless							
Yellow (High) Brass							
Red (Low) 80%							
Red (Rich Low) 85%							
Commercial Bronze							
Deoxidized Copper							
Admiralty (Condenser)							
Phosphor Bronze Grade "A"							
Tobin Bronze*							
Nickel Silver							
Ambrac*							
Standard Pipe Sizes							
Anaconda "67" (Brass) Pipe							
Anaconda "85" (Red) Brass Pipe							
Deoxidized Copper Pipe							
Brazed							
Brass (75%)							
Commercial Bronze (90% and 95%)							
Open Seam							
Brass							
Bronze							
Muntz Metal (Condenser)							

*Trade-Mark Reg. U. S. Pat. Office.

ANACONDA TUBING

SEAMLESS - BRAZED - STANDARD PIPE SIZES

ROUND

OVAL

SQUARE

RECTANGULAR

FANCY PATTERN

SPECIAL

YELLOW (HIGH) BRASS

COMMERCIAL BRONZE (90% AND 95%)

COPPER

ADMIRALTY

PHOSPHOR BRONZE

TOBIN BRONZE*

NICKEL SILVER

AMBRAC*

ANACONDA "67" (BRASS) PIPE

ANACONDA "85" (RED BRASS) PIPE

DEOXIDIZED COPPER

MUNTZ METAL (CONDENSER)

ADMIRALTY (CONDENSER)

*Trade-Mark Reg. U. S. Pat. Office.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA SEAMLESS BRASS AND COPPER TUBE

Extras Over Base Prices, Cents per Pound
Outside Diameters in Inches

STUBS' GAUGE	Decimal Inch	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{8}$	1	1 1/8	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
No. 6 and Rev.	.203																		
7	.180						8	5	1									2	4
8	.165					8	6	4										2	4
9	.148					7	5	3										1	1
10	.134					6	4	3										1	1
11	.120		11	9	7	5	4	3										2	2
12	.109		10	8	6	5	4	3										1	1
13 or 3/16	.095		9	8	6	5	4	3										1	1
14	.083	10	9	8	7	6	5	4	3	2	2	2	2	2	2	2	2	3	4
15	.072	10	9	8	7	6	5	4	3	3	3	3	3	3	4	4	4	5	6
16 or 1/8	.065	11	10	9	8	7	6	5	4	3	3	3	4	4	5	5	5	6	7
17	.058	12	11	10	9	8	7	6	5	5	5	5	6	6	7	7	7	8	9
18	.049	13	12	11	10	9	8	7	7	7	7	7	8	8	8	9	9	10	11
19	.042	14	13	12	11	10	9	8	8	8	8	8	9	9	10	10	11	11	12
20	.035	18	16	14	13	12	11	10	10	10	10	11	12	12	13	13	14	15	17
21 or 1/4	.032	20	18	16	15	14	13	12	12	12	13	14	15	15					
22	.028	22	20	18	17	16	15	14	14	15	16	17	18	19					
23	.025	25	23	20	19	18	17	16	16	18	19	22	25	28					

Sizes between Gauges or Diameters, take price of nearest Gauge or Diameter.

For all Seamless Tubes of any shape other than Round, special prices quoted upon application.

Extras for sizes over 6 inches upon application.

Small diameters. See page 156.

STANDARD PIPE SIZES

ANACONDA "67" (Brass), ANACONDA "85" (Red Brass), DEOXIDIZED COPPER
Extras Over Base Prices, Cents per Pound

$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8 Inch
10	7	2	1											3	6	7	9

Special Plumbers' Sizes, other than the Iron Pipe Sizes listed above, see page 150, for Stock Sizes.

For Lists of Standard Sizes see pages 146 to 150.

Extra charges for items of less than 200 lbs., see page 99.



ANACONDA SEAMLESS BRASS AND COPPER TUBE

STOCK SIZES
Ready for Immediate Shipment from Our Warehouse Stocks
12 Foot Lengths

Diameter of Tube Inches	Thickness in Stub's Gauge	Thickness in Decimal Parts of an Inch	Outside Diameter in Decimal Parts of an Inch	Inside Diameter in Decimal Parts of an Inch	Weight of Brass Per Linear Foot	Weight of Copper Per Linear Foot
1/8	21	.031	.1250	.0630	.034	.0366
1/8	21	.031	.1875	.1813	.057	.060
1/4	20	.035	.2500	.1870	.087	.091
1/4	20	.035	.3125	.2425	.112	.118
3/8	19	.042	.375	.2910	.161	.169
1/2	19	.042	.4375	.3535	.192	.202
1/2	18	.049	.5000	.4020	.255	.268
1/2	18	.049	.5625	.4645	.290	.304
3/4	18	.049	.6250	.5270	.326	.342
3/4	17	.058	.750	.634	.463	.486
3/4	17	.058	.875	.759	.547	.574
1	16	.065	1.000	.970	.700	.730
1 1/8	16	.065	1.125	.995	.790	.830
1 1/4	15	.072	1.250	1.106	.980	1.030
1 1/2	14	.083	1.375	1.209	1.240	1.300
1 1/2	16	.065	1.500	1.370	1.080	1.120
1 1/2	14	.083	1.500	1.334	1.360	1.430
1 3/4	14	.083	1.625	1.459	1.480	1.550
1 3/4	13	.095	1.750	1.560	1.820	1.910
2	16	.065	2.000	1.870	1.450	1.550
2	14	.083	2.000	1.834	.....	1.930
2	13	.095	2.000	1.810	2.090	2.190
2 1/4	10	.134	2.250	1.982	.....	2.430
2 1/4	12	.109	2.250	2.032	2.690	2.820
2 1/2	10	.134	2.500	2.132	.....	3.840
2 1/2	12	.109	2.500	2.282	3.010	.....
2 1/2	14	.083	2.500	2.334	.....	2.440
2 1/2	16	.065	2.500	2.370	1.830	.....
2 3/4	10	.134	2.750	2.482	.....	4.250
2 3/4	12	.109	2.750	2.532	3.320	3.490
3	11	.120	3.000	2.760	3.990	.....
3	14	.083	3.000	2.834	.....	2.930
3	16	.065	3.000	2.870	2.200	.....
3 1/4	10	.134	3.250	2.982	4.820	5.060
3 1/2	10	.134	3.500	3.232	5.210	5.470
3 1/2	14	.083	3.500	3.334	.....	3.430
3 3/4	10	.134	3.750	3.482	5.590	5.870
4	10	.134	4.000	3.732	5.980	6.280
4	14	.083	4.000	3.834	.....	3.940
4 1/4	10	.134	4.250	3.982	6.370	6.690
4 1/2	10	.134	4.500	4.232	6.750	7.090
4 3/4	10	.134	4.750	4.482	7.140	7.500
5	10	.134	5.000	4.732	7.530	7.930
5	14	.083	5.500	5.454	.....	4.720
6	10	.134	6.000	5.732	.....	9.560

Sizes carried in stock are indicated by weight. Other Diameters made to order promptly. For additional sizes of Seamless Tubes see following pages. Tinned Tubes made to order for prompt mill shipment. Variations from above weights must be expected in practice.

See page 144 for extras over Base Price.

See pages 259 to 265 for complete Table of Weights.

We can also supply Brass and Copper Tubes as large as 32 inch outside diameter. Let us Quote on Your Requirements.



ANACONDA SEAMLESS COPPER TUBE

Coppersmith Sizes

STOCK SIZES

Ready for Immediate Shipment from Our Warehouse Stocks

Exact 20 Foot Lengths

Inside Diameter of Tube, Inches	Thickness of Tube in Stub's Gauge	Outside Diameter of Tube, Inches	Weight Per Linear Foot
1	10	1.268	1.85
1¼	10	1.518	2.25
1½	10	1.768	2.66
2	10	2.268	3.48
2½	10	2.768	4.29
3	10	3.268	5.10
3½	10	3.768	5.92
4	10	4.268	6.74
1½	12	1.718	2.13
2	12	2.118	2.80
2½	12	2.718	3.46
3	12	3.118	4.12
3½	12	3.718	4.78
4	12	4.118	5.45
1½	14	1.666	1.60
2	14	2.166	2.10
2½	14	2.666	2.60
3	14	3.166	3.11
3½	14	3.666	3.61
4	14	4.166	4.12
1½	16	1.630	1.23
2	16	2.130	1.63
2½	16	2.630	2.02
3	16	3.130	2.42
3½	16	3.630	2.82
4	16	4.130	3.21

Railroad Sizes

14 to 16 Feet Long

Outside Diameter of Tube, Inches	Inside Diameter of Tube, Inches	Wall Thickness in Decimal Equivalent	Weight per Linear Foot
¾	¼	.065	.245
1½	¾	.065	.344
5/8	½	.065	.443
¾	5/8	.065	.542
7/8	¾	.065	.640
1	7/8	.065	.737
1½	1¼	.125	.580
¾	½	.125	.970
1	¾	.125	1.350
1¼	1	.125	1.740
1½	1¼	.125	2.130
1¾	1½	.125	2.520
2	1¾	.125	2.910

Sizes not listed can be made promptly.

Variations from above weights must be expected in practice.

See page 144 for extras over Base Price.



ANACONDA CONDENSER TUBES

Extras Over Base Price of Brass or Admiralty Tubes, Cents per Pound

Stubs' Gauge	Decimal Inch	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"
16	.065	5	4	4	4
17	.058	5	4	4	4
18	.049	6	5	5	5

Tinning condenser tubes inside and outside. Prices Quoted upon Application.

Extras for Cutting Seamless Tubes to Uniform Specific Lengths, Cents per Pound

Inc. $\frac{3}{4}$ in. to 1 in.	Inc. 1 in. to 2 in.	Inc. 2 in. to 4 in.	Inc. 4 in. to 6 in.	Inc. 6 in. to 9 in.	Inc. 9 in. to 12 in.	Inc. 1 ft. to 20 ft.	20 ft. and over
8	6	4	3	2	1½	No charge	Special

Shorter than $\frac{3}{4}$ in. special prices quoted upon application, not less than 8c extra.

Extra charges for items of less than 200 lbs., see page 99

ANACONDA SEAMLESS CONDENSER TUBES

ADMIRALTY MIXTURE

Standard Sizes

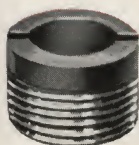
Immediate Shipment from Our Warehouse Stocks

Lengths 12, 14, 16, 18, 20 feet long

Outside Diameter of Tube, Inches	Thickness of Wall, Stubs' Gauge	Decimal Equivalent in Inches	Weight per Lineal Foot
$\frac{5}{8}$	16	.065	.441
$\frac{3}{4}$	16	.065	.540
$\frac{5}{8}$	18	.049	.342
$\frac{3}{4}$	18	.049	.418

Brass Tubes in Plain or Tinned can be Shipped Promptly.
Variations from above weights must be expected in practice.

ADMIRALTY MIXTURE AND BRASS CONDENSER TUBE FERRULES



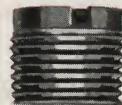
$\frac{3}{4}$ " No. 14 Thread

Immediate Shipment for $\frac{5}{8}$ " and $\frac{3}{4}$ " Tube

No. 14 and 16 Thread

Special sizes can be produced quickly

Prices Quoted upon Application



$\frac{5}{8}$ " No. 14 Thread

PHOSPHOR BRONZE SEAMLESS TUBES. NICKEL SILVER SEAMLESS TUBES.
TOBIN* BRONZE SEAMLESS TUBES. AMBRAC* SEAMLESS TUBES.

List Prices and Base Prices Quoted upon Application.

*Registered Trade-Mark U. S. Patent Office.



ANACONDA BRASS PIPE

**Announcing Anaconda 67* Brass Pipe for
normally corrosive waters and Anaconda 85*
Red-Brass Pipe for highly corrosive waters**

Changing water conditions, resulting from the growth of population, with the consequent need of going further afield for water supplies, plus the treatment of water to insure purity, have brought about serious corrosion problems which affect the life of water pipes.

ANACONDA 67* BRASS PIPE

For Normally Corrosive Waters

Investigation has shown that the life of any pipe used for domestic water distribution systems, varies greatly in different sections of the country, depending on the source and treatment of the water carried by the pipe.

When normal water conditions prevail; that is, when waters are not drawn from peaty sources, shallow wells, tubular wells or filter galleries in lowlands along river beds, and where filtered waters are not of high permanent hardness, Anaconda 67 Brass Pipe is recommended for distribution lines. This pipe contains not less than 67% copper and is semi-annealed, seamless and guaranteed to be structurally perfect.

ANACONDA 85* RED-BRASS PIPE

For Highly Corrosive Waters

For underground service lines with threaded fittings and other pipe-lines buried underground and subjected to corrosion from the outside as well as from the inside, Anaconda 85 (Red-Brass) Pipe is recommended.

For distribution lines carrying ground waters, and colored surface waters, particularly when drawn from sources of peaty origin and mechanically filtered waters which may be high in carbonic acid content and low in alkalinity, Anaconda 85 Red-Brass Pipe is offered as the best corrosion-resisting pipe commercially obtainable. Anaconda 85 Red-Brass Pipe, containing not less than 85% copper, is semi-annealed, seamless and guaranteed.

Our Technical Department is prepared to cooperate in determining the character of local water supplies and to recommend the correct alloy of Anaconda Pipe to use under specific conditions.

For Standard Sizes and Extras over Base Price, see pages 144, 149.

*Trade-Marks "67" and "85" Reg. U. S. Patent Office.



ANACONDA SEAMLESS BRASS AND COPPER PIPE

Standard Pipe Sizes

STOCK SIZES

Ready for Immediate Shipment from Our Warehouse Stocks

12 Foot Lengths

Standard Pipe Size, Inches	Outside Diameter in Inches	Inside Diameter in Inches	Weight per Linear Foot in Brass	Weight per Linear Foot in Copper
$\frac{1}{8}$	.405	.281	.246	.259
$\frac{1}{4}$	.540	.375	.437	.459
$\frac{3}{8}$	.675	.494	.672	.644
$\frac{1}{2}$	.840	.625	.911	.958
$\frac{3}{4}$	1.050	.822	1.235	1.298
1	1.315	1.062	1.74	1.829
$1\frac{1}{4}$	1.660	1.368	2.557	2.689
$1\frac{1}{2}$	1.900	1.600	3.037	3.193
2	2.375	2.062	4.017	4.224
$2\frac{1}{2}$	2.875	2.500	5.83	6.130
3	3.500	3.062	8.314	8.741
$3\frac{1}{2}$	4.000	3.500	10.85	11.41
4	4.500	4.000	12.29	12.93
$4\frac{1}{2}$	5.000	4.500	13.74	14.44
5	5.563	5.062	15.40	16.19
6	6.625	6.125	18.44	19.3

Also Nickel Plated and Polished $\frac{1}{8}$ " to 2".

ANACONDA EXTRA HEAVY BRASS PIPE

Standard Pipe Sizes

Extra Heavy Standard Pipe Size, Inches	Outside Diameter in Inches	Inside Diameter In inches	Weight per Linear Foot
$\frac{1}{4}$	.540	.294	.593
$\frac{3}{8}$	.675	.421	.805
$\frac{1}{2}$	.840	.542	1.191
$\frac{3}{4}$	1.050	.736	1.622
1	1.315	.951	2.386
$1\frac{1}{4}$	1.660	1.272	3.291
$1\frac{1}{2}$	1.900	1.494	3.986
2	2.375	1.933	5.508
$2\frac{1}{2}$	2.875	2.315	8.407
3	3.500	2.892	11.240

Variations from above weights must be expected in practice.

See page 144 for extras over Base Price.

See page 258 for complete Table of Weights.



CHROMIUM PLATED TUBES AND PIPE

We are prepared to supply the trade Chromium Plated Pipe and Tubes for purposes where it is desirable to provide a permanent and attractive finish for the exposed sections of plumbing installation and match this finish with the Chromium Plated Fixtures.

Chromium Plate is a white metal deposit similar in color to Nickel Plate, possessing the depth of Silver and the richness of Platinum.

CHROMIUM PLATED TUBES AND PIPE

Net Charges per linear foot for plating Round Tubes and Pipe in quantity lots

Standard Pipe Size	Tubes Outside Dia. In.	Cents per Foot	Standard Pipe Size	Tubes Outside Dia. In.	Cents per Foot
..	$\frac{3}{8}$	16	...	$1\frac{1}{2}$	25
$\frac{1}{8}$	.405	16	...	$1\frac{5}{8}$	28
..	$\frac{1}{2}$	16	$1\frac{1}{4}$	1.66	28
$\frac{1}{4}$	.540	16	...	$1\frac{3}{4}$	32
..	$\frac{5}{8}$	16	...	$1\frac{7}{8}$	35
$\frac{3}{8}$	.675	16	$1\frac{1}{2}$	1.9	35
..	$\frac{3}{4}$	17	...	2	38
$\frac{1}{2}$	.840	17	...	$2\frac{1}{4}$	40
..	$\frac{7}{8}$	17	2	$2\frac{3}{8}$	40
..	1	18	...	$2\frac{1}{2}$	45
$\frac{3}{4}$	1.05	18	...	$2\frac{3}{4}$	50
..	$1\frac{1}{8}$	19	$2\frac{1}{2}$	$2\frac{7}{8}$	45
..	$1\frac{1}{4}$	20	...	3	55
1	1.315	21	...	$3\frac{1}{4}$	60
..	$1\frac{3}{8}$	21	3	$3\frac{1}{2}$	55

Prices for shapes and sizes not listed will be quoted upon application.

Special prices will be made for small lots.

See pages 145 to 149, for Lists of Plain Tubes and Standard Pipe Sizes.

ANACONDA SEAMLESS BRASS PLUMBERS' TUBES

FINE THREAD SIZES

12 foot exact lengths

Plain ends

Immediate Shipment from Our Warehouse Stocks

Plain Finish, Inches	Nickel Plated, Inches	Outside Diameter in Inches	Inside Diameter in Inches	Weight in Lbs. per Ft.	Total Weight 12 Ft. Lengths
$\frac{5}{8}$	$\frac{5}{8}$	.654	.521	.452	5.424
$\frac{3}{4}$	$\frac{3}{4}$	.768	.631	.554	6.648
$\frac{7}{8}$	..	.875	.728	.682	8.184

Special Sizes Made to Order Promptly, if Quantity Warrants Special Mill Manufacture.

ROUGH BRASS PIPE FITTINGS

MALLEABLE AND CAST IRON PATTERNS

All Pipe Sizes from $\frac{1}{4}$ " to 4"

Immediate Shipment from Our Warehouse Stocks

ELBOWS
COUPLINGS
TEES

REDUCERS
BUSHINGS
NIPPLES

CAPS
LOCKNUTS
PLUGS

SEMI-FINISHED UNIONS
GLOBE VALVES
• GATE VALVES



Street Elbow



90° Elbow



Tee



Red. Coup.



Lock Nut



Union



Bushing



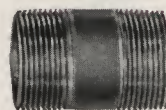
Cap



45° Elbow



Coupling



Nipple

Polished—Nickel Plated or Tinned Brass Fittings Shipped Promptly
Acid Resisting Fittings Promptly

List Price and Discounts Quoted upon Application

The above items can also be furnished in Monel Metal and Pure Nickel

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA ANNEALED (SOFT) COPPER TUBES

In Coils About 20 to 60 feet

STANDARD SIZES
Immediate Shipment from Our Warehouse Stocks

Outside Diameter in Inches	Thickness of Wall Stubbs' Gauge	Thickness Decimal Part of an Inch	Weight per Linear Foot
$\frac{1}{8}$	21	.031	.035 pounds
$\frac{3}{16}$	21	.031	.059 pounds
$\frac{1}{4}$	20	.035	.091 pounds
$\frac{5}{16}$	20	.035	.118 pounds
$\frac{3}{8}$	20	.035	.144 pounds
$\frac{1}{2}$	20	.035	.197 pounds
$\frac{5}{8}$	19	.042	.297 pounds
$\frac{3}{4}$	19	.042	.360 pounds
$\frac{7}{8}$	19	.042	.424 pounds
1	19	.042	.480 pounds
$1\frac{1}{4}$	18	.049	.710 pounds
$1\frac{1}{2}$	17	.058	1.010 pounds
2	16	.065	1.520 pounds

Variations from above weights must be expected in practice.

Other sizes can be made promptly.

See page 144 for extras over Base Price.

BRASS SMALL TUBE FITTINGS

Prompt Shipment

COMPRESSION TYPE

$\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ "

Elbows, Tees, Couplings, Nipples,
Unions, Nuts, Sleeves and
Spring Check Valves

FLARED TYPE

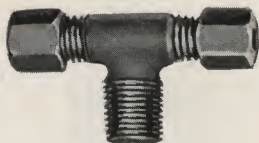
$\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ "

Flared Elbows, Double Flared
Elbows, Flared Tees, Flared
Union; Male or Female Pipe
Thread and Double Flared
Unions

Prices Quoted upon Application



Compression Union



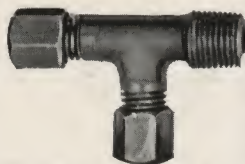
Compression
Union Tee



Compression
Union Ell



Double Compression
Union



Compression Union Tee



Compression
Union Tee



Compression Union Ell

BRASS TRAP SCREWS

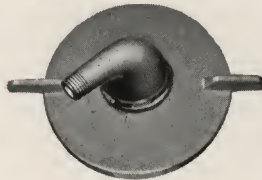
Immediate Shipment from Our Warehouse Stocks

**BRASS TRAP
SCREWS**
OPEN PATTERN



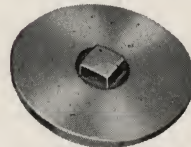
4"—5"—6"

**BRASS TRAP
SCREWS**
DOME PATTERN
With Elbow (Goose Neck)
and Two Handles



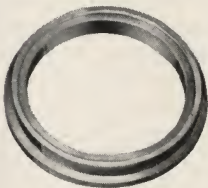
4"—5"—6"

**BRASS TRAP
SCREWS**
CLOSED PATTERN



4"—5"—6"

**BRASS TRAP
SCREWS**
OPEN PATTERN
EXTRA HEAVY



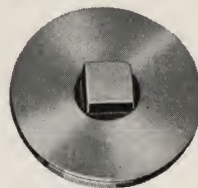
4"—5"—6"

**BRASS TRAP
SCREWS**
CUT-OUT PATTERN
With Two Handles



4" With 1½" Hole
4" With 2" Hole
4" With 3" Hole
5" With 3" Hole
6" With 3" Hole

**BRASS TRAP
SCREWS**
CLOSED PATTERN
EXTRA HEAVY



4"—5"—6"

BRASS TRAP SCREW ELBOWS (Goose Necks)



BRASS (TUBE) UNIONS For ⅜" and ½" Tube



2 Piece



3 Piece

Prices Quoted upon Application



A FEW FACTS RELATIVE TO COPPER SERVICE TUBES IN CONNECTION WITH COMPRESSION FITTINGS

Water Works Officials and Municipal Engineers are giving much serious consideration to the subject of pipe for water service,—that is, the underground line connecting the corporation stop at the water main to the curb stop, or water meter. The chief requirements sought are resistance to corrosion, both internal and external; strength, ductility and facility in making the necessary joints and connections.

Rust constitutes the greatest menace to water distribution systems. It forms in all iron and steel pipes—in some localities with alarming rapidity—restricting the flow of water to a sluggish trickle and finally to no flow at all.

Copper and copper alloy pipes cannot rust and consequently are not subject to stoppage because of rust accumulations, neither are they subject to the disintegrating effects of rust, which in time eats through iron or steel, causing leaks. With modern street paving, the costs incidental to replacing services installed under permanent highways is a serious consideration and it is logical that only the best materials obtainable be selected.

In addition to Brass Pipe in standard pipe sizes, Copper Service Tubes and Red-Brass Service Tubes are now supplied in special sizes for use with compression fittings. These flexible tubes possess many advantages which particularly recommend them for service connections. They are jointed together by means of threadless—or in terms better known to the trade—compression fittings. A compression fitting is, as the name implies, a union which depends upon compression for its tightness and connects two tubes without the necessity of cutting threads. The ends of the tubes are shaped by means of hand tools to form a flange and can be assembled on the job, making a water-tight connection without sacrificing the strength of the system.

Comparatively thin gauge tubes are permissible for service connections when compression fittings are attached. Standard heavy wall sizes of pipe are necessary where screw joints are used, for a considerable portion of the wall is cut away during the threading operation and enough thickness must be left to prevent any undue weakness in the pipe at this point.

Copper Service Tubes can be connected directly to the corporation stop without a gooseneck and because of their flexibility can be readily bent to avoid underground obstructions. The freezing hazard, or risk of bursting from expansion under extreme cold, is an important factor when iron, steel or lead service pipes are used. On the contrary, this seldom happens with copper or copper alloys by reason of their greater ductility and high yield point.

For moderate bends or offsets these tubes can be bent by hand without heating. Where a bend of small radius must be made, that portion of the tube to be bent may be filled with dry sand well tamped down, both ends blocked and the tube bent to the required shape.



ANACONDA COPPER SERVICE TUBES

Prompt Shipment

Standard Mill Lengths

Nominal Size Inches	Permissible Variation in				Weight Lbs. per Ft.	Permissible Variation in Weight	Test Pressure Lbs. per Sq. In.
	O. D. Inches	O. D. Inch	Wall Inch	Wall Inch			
1/2	.625	.0025	.049	.0025	.343	5%	1140
3/4	.875	.0030	.065	.003	.640	5%	1040
1	1.125	.0030	.065	.003	.838	5%	780
1 1/4	1.375	.0035	.065	.003	1.04	5%	630
1 1/2	1.625	.0040	.072	.0035	1.36	5%	580
2	2.125	.0050	.083	.004	2.06	5%	520

Tubes up to and including 20 feet are usually shipped in straight lengths. All lengths over 20 feet are furnished in coils which can be supplied up to 60 feet in length.

See page 144 for extras over Base Price.

COPPER PIPE COUPLINGS

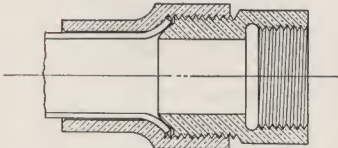
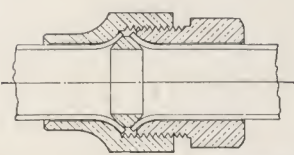
With Nut and Swivel in One-Piece for use with Copper Service Tubes



Copper to Copper Pipe



Copper to Iron Pipe



Sectional cuts of the above

Size	1/2 Inch	3/4 Inch	1 Inch	1 1/4 Inch	1 1/2 Inch	2 Inches
Price each	\$0.57	\$0.72	\$0.85	\$1.14	\$1.48	\$2.12

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

SEAMLESS BRASS AND COPPER TUBES

SMALL SIZES AND LIGHT GAGES

Extras Over Base Price, Cents per Pound

Outside Diameter

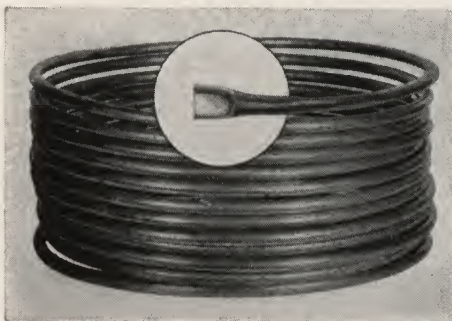
Stubs' Gage	B.&S. Gage	Thou-sand-ths	⅜	⅝	⅞	1	1 ⅛	1 ¼	1 ½	1 ⅝	1 ¾	1 ⅞	2	2 ⅛	2 ¼
			.0312	.0468	.0625	.0781	.0937	.1093	.125	.1406	.1562	.1718	.1875	.2031	.2187
18	16	.050							\$0.52	\$0.46	\$0.40	\$0.35	\$0.31	\$0.28	\$0.25
19	17	.045							.55	.50	.45	.39	.34	.32	.29
	18	.040							.57	.52	.47	.41	.36	.34	.31
20	19	.0358					\$0.68	\$0.63	.58	.53	.48	.42	.37	.35	.32
21	20	.0319					.70	.65	.60	.55	.50	.44	.38	.36	.33
22	21	.0284					.72	.67	.62	.57	.52	.46	.40	.38	.35
23	22	.025			\$0.98	\$0.86	.75	.70	.65	.60	.55	.49	.43	.40	.37
24	23	.0225			1.03	.90	.78	.72	.67	.62	.57	.51	.45	.43	.40
25	24	.020			1.06	.94	.82	.76	.70	.64	.59	.53	.48	.46	.43
26	25	.0179		\$1.48	1.09	.97	.85	.78	.72	.66	.61	.55	.50	.48	.46
27	26	.0159		1.52	1.12	1.00	.88	.81	.75	.70	.65	.58	.52	.50	.48
28	27	.014		1.56	1.17	1.05	.93	.86	.80	.74	.68	.62	.56	.53	.50
29	28	.0126	\$1.97	1.62	1.22	1.10	.98	.91	.84	.78	.72	.66	.60	.57	.53
30	29	.011	2.23	1.68	1.28	1.16	1.05	.97	.90	.83	.76	.69	.62	.60	.57
31	30	.010	2.45	1.78	1.38	1.28	1.18	1.09	1.01	.93	.85	.76	.67	.65	.62
32	31	.0089	2.72	1.87	1.48	1.38	1.28	1.18	1.10	1.02	.94	.83	.75	.73	.70
33	32	.0079	3.49	1.97	1.58	1.48	1.38	1.28	1.18	1.10	1.02	.91	.80	.78	.75
34	33	.007	3.68	2.26	1.77	1.67	1.57	1.48	1.39	1.29	1.21	1.12	1.03	.97	.92
	34	.006	4.17	2.55	1.96	1.86	1.77	1.66	1.56	1.46	1.36	1.26	1.16	1.10	1.05
	35	.0056	4.70	2.86	2.15	2.05	1.96	1.85	1.74	1.64	1.54	1.44	1.34	1.28	1.21

Stubs' Gage	B.&S. Gage	Thou-sand-ths	1 ⅞	2	2 ⅛	2 ¼	2 ½	2 ⅝	2 ¾	2 ⅞	3	3 ⅛	3 ¼	3 ⅝	3 ¾	3 ⅞	4
			.2343	.250	.2812	.3125	.3437	.375	.4375	.500	.5625	.625	.750	.875			
18	16	.050	\$0.22	\$0.19	\$0.17	\$0.15	\$0.13	\$0.14									
19	17	.045	.26	.23	.20	.16	.14	.14	\$0.13	\$0.12	\$0.11	\$0.10	\$0.09				
	18	.040	.28	.25	.23	.18	.16	.15	.13	.13	.12	.11	.10				
20	19	.0358	.29	.26	.24	.20	.18	.18	.16	.14	.13	.12	.11				
21	20	.0319	.30	.27	.26	.23	.20	.20	.18	.16	.15	.14	.13				
22	21	.0284	.33	.30	.28	.25	.22	.22	.20	.18	.17	.16	.15	\$0.14	\$0.14		
23	22	.025	.35	.33	.31	.28	.25	.25	.23	.20	.19	.18	.17	.16	.16		
24	23	.0225	.38	.36	.34	.31	.29	.31	.26	.24	.23	.22	.21	.19	.18		
25	24	.020	.42	.40	.38	.37	.36	.34	.29	.27	.25	.24	.23	.22	.22		
26	25	.0179	.44	.42	.41	.40	.38	.35	.30	.28	.26	.25	.24	.23	.23		
27	26	.0159	.46	.44	.43	.42	.40	.37	.33	.32	.30	.30	.29	.28	.27		
28	27	.014	.48	.46	.45	.44	.43	.40	.36	.35	.33	.32	.31	.30	.30		
29	28	.0126	.51	.48	.47	.46	.45	.42	.38	.37	.36	.35	.34	.33	.32		
30	29	.011	.54	.50	.49	.48	.47	.44	.40	.39	.41	.42	.41	.42	.43		
31	30	.010	.58	.53	.52	.51	.50	.47	.43	.42	.44	.49	.50	.51	.52		
32	31	.0089	.67	.63	.60	.57	.55	.50	.48	.49	.51	.53	.56	.58	.63		
33	32	.0079	.71	.68	.65	.62	.59	.56	.58	.60	.62	.64	.66	.68	.71		
34	33	.007	.87	.81	.76	.71	.65	.60	.62	.64	.66	.69	.72	.76	.80		
	34	.006	1.00	.95	.87	.81	.76	.71	.73	.75	.80	.85	.90	.94	.98		
	35	.0056	1.15	1.08	.98	.92	.87	.81	.84	.87	.91	.98	1.03	1.08	1.16		

For Items Less than 200 Pounds see page 99.

SOFT SEAMLESS DEHYDRATED AND SEALED COPPER TUBING FOR ELECTRICAL REFRIGERATION INSTALLATION

For many years our mill has specialized in the production of Soft Seamless Copper Tubing. This tubing is especially prepared for use in the installation of Electric Refrigerators so that the inside wall is free from imperfections. It is specially drawn, annealed in electric furnaces to prevent scale and then thoroughly cleaned, dried and sealed.



The above cut shows a standard coil of our tubing with an enlarged view of the sealed end in the insert. This tube is ready for use without further processing. It is free from scale and all other foreign matter which might clog the valves. It is dry.

We carry special refrigeration tubing in stock in $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " outside diameters. Our facilities are such that we believe all service branches installing electric refrigeration will find it to their advantage to draw on our convenient stock for their supplies of this material.

Shipment is made of Tubing "in Random Length Coils," i.e. there are approximately 100 ft. in a $\frac{1}{4}$ " coil; 70 ft. in a $\frac{3}{8}$ " coil; 55 ft. in a $\frac{7}{16}$ " coil; 55 ft. in a $\frac{1}{2}$ " coil; 40 ft. in a $\frac{5}{8}$ " coil; and 30 ft. in a $\frac{3}{4}$ " coil.

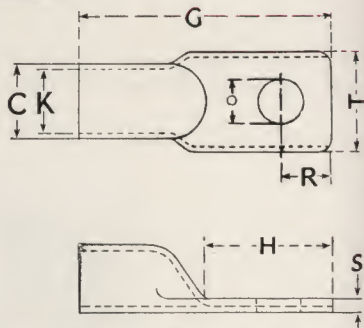
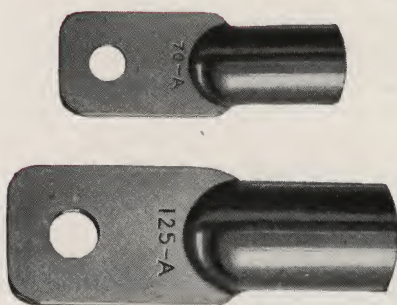
WEIGHTS OF COPPER TUBING

- 1 lb. $\frac{1}{4}$ " tubing contains approximately 11 ft.
- 1 lb. $\frac{3}{8}$ " tubing contains approximately 7 ft.
- 1 lb. $\frac{7}{16}$ " tubing contains approximately $5\frac{1}{2}$ ft.
- 1 lb. $\frac{1}{2}$ " tubing contains approximately 5 ft.
- 1 lb. $\frac{5}{8}$ " tubing contains approximately $4\frac{1}{2}$ ft.
- 1 lb. $\frac{3}{4}$ " tubing contains approximately $3\frac{1}{2}$ ft.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

WOLVERINE "WT" COPPER CABLE SOLDERING LUGS

ROUNDED CORNERS—ONE STUD HOLE
and
SQUARE END—ONE STUD HOLE
In Plain and Tin Coated



Conductivity 98%, Minimum. Electrolytic copper 99.90% Pure. Take solder more readily than other lugs. Will not leak solder. Tube ends are even. Clean, bright finish.

ROUNDED CORNERS—ONE STUD HOLE

O. D. Tube Dimension "C"	Cat. No.	Amp. Rating	Max. Stranded Wire B. & S. Gauge	DIMENSIONS								Approx. Wt. Per 1000
				C	G	H	K	O	R	S	T	
$\frac{3}{16}$	0187	25	10	$\frac{3}{16}$	1	$\frac{1}{2}$	.137	$\frac{11}{16}$	$\frac{11}{16}$	.051	.250	41bs.
$\frac{1}{4}$	0250	35	8	$\frac{1}{4}$	$1\frac{1}{4}$	$\frac{11}{16}$	.188	$\frac{11}{16}$	$\frac{11}{16}$	.062	.370	8 lbs.
$\frac{5}{16}$	0312	50	6	$\frac{5}{16}$	$1\frac{1}{2}$	$\frac{11}{16}$	.250	$\frac{11}{16}$	$\frac{1}{4}$	.063	.464	10 lbs.
$\frac{3}{8}$	0375	70	4	$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	.3125	$\frac{11}{16}$	$\frac{11}{16}$	.063	.546	16 lbs.
$\frac{7}{16}$	0437	90	2	$\frac{7}{16}$	$1\frac{11}{16}$	1	.357	$\frac{11}{16}$	$\frac{11}{16}$	.081	.639	30 lbs.
$\frac{1}{2}$	0500	125	0	$\frac{1}{2}$	$2\frac{1}{16}$	1	.419	$\frac{11}{16}$	$\frac{11}{16}$	.081	.744	36 lbs.
$\frac{11}{16}$	0562	150	00	$\frac{11}{16}$	$2\frac{1}{8}$	1	.461	$\frac{11}{16}$	$\frac{11}{16}$	.102	.818	51 lbs.
$\frac{13}{16}$	0687	175	000	$\frac{13}{16}$	$2\frac{3}{8}$	$1\frac{1}{4}$	.586	$\frac{11}{16}$	$\frac{11}{16}$	.102	1.026	82 lbs.
$\frac{3}{4}$	0750	225	0000	$\frac{3}{4}$	$2\frac{11}{16}$	$1\frac{1}{4}$	.625	$\frac{11}{16}$	$\frac{11}{16}$	.125	1.107	116 lbs.
$\frac{13}{16}$	0812	237	250,000 cm.	$\frac{13}{16}$	$3\frac{1}{16}$	$1\frac{11}{16}$	.669	$\frac{11}{16}$	$\frac{3}{4}$	.144	1.199	167 lbs.
$\frac{15}{16}$	0937	325	400,000 cm.	$\frac{15}{16}$	$3\frac{3}{8}$	$1\frac{11}{16}$	.776	$\frac{11}{16}$	$\frac{3}{4}$	.162	1.379	250 lbs.
$1\frac{1}{16}$	1062	400	500,000 cm.	$1\frac{1}{16}$	$4\frac{5}{16}$	$2\frac{3}{8}$	.881	$\frac{11}{16}$	$\frac{11}{16}$	.181	1.573	330 lbs.
$1\frac{1}{8}$	1125	450	600,000 cm.	$1\frac{1}{8}$	$4\frac{11}{16}$	$2\frac{5}{8}$	.944	$\frac{11}{16}$	$\frac{11}{16}$	.181	1.670	405 lbs.
$1\frac{1}{4}$	1312	550	800,000 cm.	$1\frac{1}{4}$	$5\frac{1}{8}$	$2\frac{1}{2}$	1.084	$\frac{11}{16}$	$1\frac{1}{8}$	.229	1.960	690 lbs.
$1\frac{1}{2}$	1437	650	1,000,000 cm.	$1\frac{1}{2}$	$5\frac{3}{8}$	$2\frac{1}{2}$	1.209	$\frac{11}{16}$	$1\frac{1}{8}$	.229	2.190	800 lbs.
$1\frac{3}{4}$	1750	850	1,500,000 cm.	$1\frac{3}{4}$	$6\frac{11}{16}$	$3\frac{3}{8}$	1.461	$1\frac{1}{8}$	$1\frac{1}{8}$	.289	2.660	1500 lbs.
$2\frac{1}{16}$	2062	1050	2,000,000 cm.	$2\frac{1}{16}$	$7\frac{3}{8}$	$3\frac{1}{2}$	1.699	$1\frac{1}{8}$	$1\frac{1}{8}$	.364	3.030	2600 lbs.

NOTE—When cable with fibre core is used, fibre must be removed to allow cable to fit terminal.

In selecting soldering lugs to accord with N. E. C. S. ratings for Enclosed Fuse Cutouts, Knife Switches, etc., use the following:

For	Use	For	Use
30 Amperes	0250	200 Amperes	0750
60 Amperes	0375	400 Amperes	1062
100 Amperes	0500	600 Amperes	1437

Complete information on the use and application of "WT" Copper Cable Soldering Lugs will be sent upon request.

Prices on Application. Warehouse Delivery.

For Square End Lugs and Tinned Lugs, see page 159.

WOLVERINE "WT" COPPER CABLE SOLDERING LUGS

Continued from page 158

Conductivity 98%. Electrolytic copper 99.90% Pure. Take solder more readily than other lugs. Will not leak solder. Tube ends even. Clean, bright finish.

SQUARE END SOLDERING LUGS
in Plain and Tin Coated

Cat. No.	Amp. Rating	Wire Size	C	G	H	K	O	R	S	T	Weight per 1000
0187	25	10	$\frac{3}{16}$	$\frac{11}{16}$	$\frac{3}{8}$	.137	$\frac{5}{16}$	$\frac{5}{16}$	.051	.263	3
1-0250	30	8	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{11}{16}$	.188	$\frac{11}{16}$	$\frac{11}{16}$	.062	.370	8
1-0312	50	6	$\frac{5}{16}$	$1\frac{1}{8}$	$\frac{3}{4}$	.248	$\frac{11}{16}$	$\frac{11}{16}$	.062	.464	12.3
1-0375	60	4	$\frac{3}{8}$	$1\frac{3}{8}$	$\frac{3}{4}$	.279	$\frac{11}{16}$	$\frac{11}{16}$	.093	.531	20.5
3-0437	90	2	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{4}$	.351	$\frac{5}{8}$	$\frac{11}{16}$	.086	.639	22.5
3-0500	100	0	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{11}{16}$	.399	$\frac{1}{4}$	$\frac{11}{16}$	.100	.744	42
3-0562	150	00	$\frac{5}{8}$	$1\frac{1}{2}$	$\frac{11}{16}$	.465	$\frac{5}{8}$	$\frac{11}{16}$	.098	.830	50
1-0625	200	000	$\frac{3}{4}$	$2\frac{1}{8}$	$\frac{3}{4}$	.529	$\frac{11}{16}$	$\frac{11}{16}$	.097	.916	61
1-0687	250	000	$\frac{11}{16}$	$2\frac{1}{8}$	$\frac{11}{16}$	.563	$\frac{11}{16}$	$\frac{1}{2}$	.125	1.026	100

ROUNDED CORNERS—ONE STUD HOLE
Coated With Pure Tin

O. D. Tube Dimension "C"	Cat. No.	Amp. Rating	Max. Stranded Wire B. & S. Gauge	DIMENSIONS								Approx. Wt. Per 100
				C	G	H	K	O	R	S	T	
$\frac{1}{8}$	T-0187	25	10	$\frac{3}{16}$	1	$\frac{1}{2}$	.137	$\frac{5}{16}$	$\frac{5}{16}$	.051	.250	.45 lbs.
$\frac{1}{4}$	T-0250	35	8	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{11}{16}$	.188	$\frac{11}{16}$	$\frac{11}{16}$	.062	.370	.75 lbs.
$\frac{5}{16}$	T-0312	50	6	$\frac{5}{16}$	$1\frac{1}{8}$	$\frac{3}{4}$	.250	$\frac{5}{8}$	$\frac{1}{4}$	.063	.464	1.10 lbs.
$\frac{3}{8}$	T-0375	70	4	$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	.3125	$\frac{5}{8}$	$\frac{5}{8}$	.063	.546	1.70 lbs.
$\frac{1}{2}$	T-0437	90	2	$\frac{1}{2}$	$1\frac{1}{2}$	1	.357	$\frac{5}{8}$	$\frac{1}{2}$	.081	.639	3.20 lbs.
$\frac{5}{8}$	T-0500	125	0	$\frac{1}{2}$	$2\frac{1}{8}$	1	.419	$\frac{11}{16}$	$\frac{1}{2}$	.081	.744	3.70 lbs.
$\frac{3}{4}$	T-0562	150	00	$\frac{5}{8}$	$2\frac{1}{2}$	1	.461	$\frac{11}{16}$	$\frac{1}{2}$	.102	.818	5.10 lbs.
$\frac{7}{8}$	T-0687	175	000	$\frac{11}{16}$	$2\frac{5}{8}$	$1\frac{1}{4}$	.586	$\frac{11}{16}$	$\frac{1}{2}$	.102	1.026	8.20 lbs.
$\frac{1}{2}$	T-0750	225	0000	$\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{1}{4}$	.625	$\frac{11}{16}$	$\frac{1}{2}$	.125	1.107	12.60 lbs.
$\frac{1}{2}$	T-0812	237	250,000 cm.	$\frac{11}{16}$	$3\frac{1}{8}$	$1\frac{1}{2}$	.669	$\frac{11}{16}$	$\frac{3}{4}$	.144	1.199	17.00 lbs.
$\frac{1}{2}$	T-0937	325	400,000 cm.	$\frac{11}{16}$	$3\frac{3}{8}$	$1\frac{1}{2}$	.776	$\frac{11}{16}$	$\frac{3}{4}$	.162	1.379	26.00 lbs.
$1\frac{1}{8}$	T-1062	400	500,000 cm.	$1\frac{1}{8}$	$4\frac{1}{8}$	$2\frac{3}{8}$	.881	$\frac{11}{16}$	$\frac{11}{16}$	.181	1.573	34.00 lbs.
$1\frac{1}{4}$	T-1125	450	600,000 cm.	$1\frac{1}{8}$	$4\frac{1}{2}$	$2\frac{3}{8}$	.944	$\frac{11}{16}$	$\frac{11}{16}$	.181	1.670	42.00 lbs.
$1\frac{1}{2}$	T-1312	550	800,000 cm.	$1\frac{1}{8}$	$5\frac{1}{8}$	$2\frac{1}{2}$	1.084	$\frac{11}{16}$	$1\frac{1}{8}$	.229	1.960	70.00 lbs.
$1\frac{3}{4}$	T-1437	650	1,000,000 cm.	$1\frac{1}{8}$	$5\frac{3}{8}$	$2\frac{1}{2}$	1.209	$\frac{11}{16}$	$1\frac{1}{8}$	.229	2.190	83.00 lbs.
$1\frac{3}{4}$	T-1750	850	1,500,000 cm.	$1\frac{3}{4}$	$6\frac{1}{2}$	$3\frac{3}{8}$	1.461	$1\frac{1}{8}$	$1\frac{3}{8}$	.289	2.660	155.00 lbs.
$2\frac{1}{8}$	T-2062	1050	2,000,000 cm.	$2\frac{1}{8}$	$7\frac{5}{8}$	$3\frac{1}{2}$	1.699	$1\frac{1}{8}$	$1\frac{3}{8}$	.364	3.030	269.00 lbs.

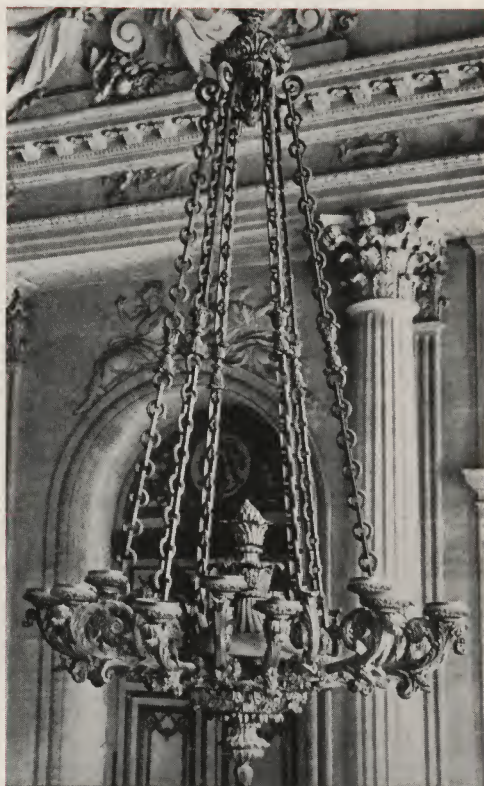
In selecting soldering lugs to accord with N. E. C. S. ratings for Enclosed Fuse Cutouts, Knife Switches, etc., use the following:

For	Use	For	Use
30 Amperes	0263	200 Amperes	0750
60 Amperes	0375	400 Amperes	1062
100 Amperes	0500	600 Amperes	1437

NOTE—When cable with fibre core is used, fibre must be removed to allow cable to fit terminal.

Prices Quoted upon Application. Carried in Stock.

COPPER AND BRASS *for* LIGHTING FIXTURES



BRONZE CHANDELIER IN VERSAILLES,
THE FAMOUS CHATEAU OF LOUIS XIV

LIGHTING fixtures suggestive in their appearance of the lanterns used in olden times have come into widespread vogue lately. They combine the picturesque atmosphere of bygone days with the convenience of modern electric lighting. Whether they are intended for indoor or outdoor use these lanterns are most attractive when made of sheet copper.

Copper lanterns installed outside the doorway of a suburban home cast a cheery glow over the entrance that suggests an old-fashioned welcome to the friends of those who dwell within. Exposure to the elements gradually weathers the copper which acquires a fine green patina. Copper is immune to rust and the lanterns, with ordinary care against damage, can be depended upon to outlast the house itself.

Lanterns and other types of lighting fixtures for use inside the house can be made of either copper or brass. In contrast with the copper lanterns outside, with their weathered green color, the metal of the indoor fixtures retains the original color that

Nature gave it. Here, too, the fixtures become more attractive the longer they are used. Time has no effect upon copper or its alloys, brass and bronze, except to make the metal more beautiful.

The chandelier which is illustrated on the top of the previous page is excellent proof of the endurance of copper and its alloys. This fixture, which is made of bronze and incidentally is a splendid and elaborate example, is in the famous Chateau de Versailles, in France. Time played a curious trick upon the inhabitants of this luxurious building. The monarchs for whom this chandelier was made have now become a legend of the past while the bronze fixture remains in its place as sound and good as the day it was placed there long ago.



THESE ELECTRIC FIXTURES IN THE FORM OF LANTERNS
ARE BOTH ATTRACTIVE AND ENDURING. THEY ARE
MADE OF COPPER, THE METAL THAT CANNOT RUST

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA FANCY PATTERN BRAZED BRASS TUBES

IN

ROUND—SQUARE—HEXAGON—OCTAGON—OVAL—
FLUTED—ROPE—CABLE AND REEDED SHAPES
OF MANY DESIGNS

Anaconda Fancy Pattern Brazed Brass Tubes have been developed in a wide variety of designs, shapes and sizes to supply the rapidly increasing demand among the metal arts and crafts for ornamental brasses.

Manufacturers of bridge, floor and table lamps, electric lighting fixtures, metal novelties, andirons, coffin hardware, brass bedsteads and similar furnishings use fancy pattern brass tubes in the fabrication of their products because they provide an economical means of obtaining artistic results.

Through their use, the expense and maintenance of drawing and embossing dies in addition to many manufacturing operations employed in the production of art metal designs may be eliminated.

All standard brass finishes may be applied to any of the patterns listed and many pleasing effects can be produced by combining different designs and shapes.

Opportunities may exist where the adaptation of such tubes for the fabrication of your product could be made to advantage.

SCREEN FRAME AND WINDSHIELD TUBING

Made in a wide range of Shapes and Sizes to suit your Specifications.

Send for illustrated Booklet showing more than 135 patterns, including a number of New Designs.

Fancy Pattern Brazed Brass Tubes can be furnished in any size from $\frac{3}{8}$ " to 2" outside diameter, No. 16 B&S gauge (.0508") to No. 22 B&S gauge (.025").

Prices Quoted upon Application.

For Plain Brazed Brass Tubes, see pages 165, 166 and 167.

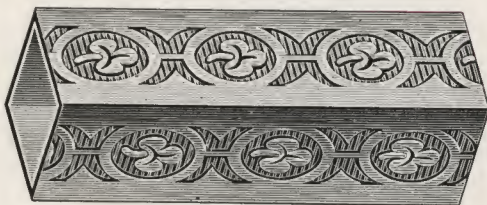


**ANACONDA FANCY PATTERN
BRAZED BRASS TUBES**

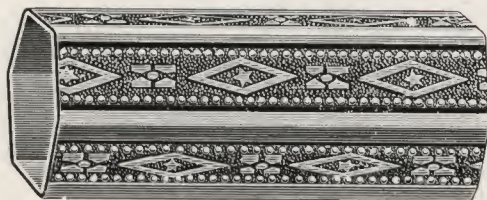


No. 12—Roundstalk

A few of the many patterns we are prepared to furnish. Send for illustrated Booklet showing over 135 designs.



No. 35—Square Shamrock



No. 36—Hexagon Diamond

Prices Quoted upon Application.

*See pages 165, 166 and 167
for Plain Brazed Brass Tubes.*



No. 43—Reeded Twist, 7 Flutes (Right Twist)

Continued on page 164



ANACONDA FANCY PATTERN BRAZED BRASS TUBES

List of Designs, Giving Pattern Numbers

1 Round Royal.	46 Sq. Queen Anne.	92 Square Twist, Fancy.
2 Round Italian.	47 Reeded Sq. Twist.	93 Square Twist, Fancy Reeded.
3 Plain Half Round.	48 Fluted Rope, 6 Flutes.	702 Plain Square.
3½ Plain Half Round.	49 Sq. Twist, Long Pitch.	705 Square Twist.
4 Plain Octagon.	50 Sq. Twist, Fancy Pattern.	707 Round Fluted.
5 Plain Hexagon.	51 Reeded Twist, 6 Flutes.	710 Reeded Rope.
6 Round Daisy.	52 Fine Reeded Rope.	710½ Reeded Diamond Rope.
7 Plain Rectangular.	54 Reeded Twist, 6 Flutes.	711 Plain Rope.
8 Round Tulip.	55 Round Shamrock.	712 Beaded Rope, Long Twist.
9 Plain Tre Foil.	56 Round Scroll.	713 Fancy Rope.
10 Clover Leaf.	57 Round Eight, Figured.	714 Plain Diamond Rope.
11 Round Lip Tube.	58 Fancy Octagon Rope.	719 Square Oriental.
12 Round Stalk.	59 Square Diamond.	721 Hexagon English.
13 Square Maltese.	60 Fancy Octagon.	723 Square English.
14 Sq. Double Barred.	61 Maltese Reeded Rope.	726 Round Diamond Beaded.
15 Round Leaf.	62 Round Cable.	727 Round Beaded.
16 Round Queen Anne.	63 Fancy Reeded Rope.	737 Round Oak.
17 Round Fern.	64 Square Leaf.	738 Square Fancy.
18 Barred Rope.	65 Fancy Reeded Rope.	739 Square Fancy.
19 Round Rose.	66 Square Fancy.	741 Plain Rope.
20 Square Pebbled.	67 Maltese Reeded Rope.	745 Square Fancy.
21 Square Pebbled.	68 Fancy Rope.	746 Square Fancy.
22 Diamond Rope Barred.	69 Maltese Rope.	764 Square Fancy.
23 Round Flowered.	70 Fancy Octagon.	765 Fancy Octagon, Fluted.
24 Square Egyptian.	71 Hexagon Fancy Rope.	766 Reeded Rope.
25 Sq. Single Barred.	72 Hexagon Fancy Rope.	768 Square Fancy.
26 Square Fancy.	73 Fancy Round Rope.	770 Beaded Diamond Rope.
27 Maltese Cross.	74 Fancy Round Rope.	772 Fancy Diamond Rope.
28 Fancy Square.	75 Diamond Rope.	774 Diamond Beaded Rope.
29 Round Oriental.	76 Maltese Rope.	775 Fancy Rope.
30 Square Fancy.	77 Diamond Rope.	776 Fancy Rope.
31 Square Fancy.	78 Fancy Rope.	778 Plain Rope.
32 Square Fancy.	79 Round Fancy Matted.	779 Fancy Reeded Rope.
33 Hexagon Shamrock.	80 Fluted Fancy, 6 Flutes.	780 Fancy Diamond Rope.
34 Square Japanese.	81 Fancy Rope, Hammered.	781 Large Beaded Rope.
35 Square Shamrock.	83 Diamond Rope.	782 Large Beaded Diamond Rope.
36 Hexagon Diamond.	84 Maltese Reeded Rope,	783 Fancy Reeded Rope.
37 Sq. Twist, Long Pitch.	Hammered.	784 Fancy Reeded Diamond Rope.
38 Round Scottish.	85 Round Fancy Matted.	785 Matted Rope.
39 Sq. Twist, Round Corners.	86 Fancy Reeded Rope,	786 Matted Diamond Rope.
40 Cable Rope, Shallow.	Hammered.	787 Fancy Reeded Rope.
41 Cable Rope, Deep.	87 Square, Fancy Matted.	Ovals.
42 Square Twist.	88 Square Fancy.	Windshield Tubing.
43 Reeded Twist, 7 Flutes.	89 Square Fancy.	Screen Frame Tubing.
44 Straight Fluted, 6 Flutes.	90 Fancy Rope.	
45 Round Venetian.	91 Fancy Reeded Rope.	

Where sizes are not shown, the majority of these Fancy Pattern Brazed Tubes can be furnished from $\frac{3}{8}$ inch to 2 inches in diameter. No. 16 B&S Ga. (.0508) to No. 22 B&S Ga. (.025).

When ordering Fancy Pattern Brazed Brass Tubes please mention the number and name of pattern desired.

Prices Quoted upon Application.

See pages 165, 166 and 167 for Plain Brazed Tubes.

Send for Illustrated Booklet.



BRAZED TUBE

ANACONDA BRAZED BRASS, COMMERCIAL BRONZE AND COPPER TUBES

Brown & Sharpe's Gauge the Standard

Outside Diameter

Base Prices Quoted upon Application

		Extras Over Base Prices, Cents per Pound												
Size		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Gauge	Inches	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3
No. 12	.0808			1							2	4	5	6
13	.0719			1							2	4	5	6
14	.0640	4	2	1							2	4	5	6
					BASE									
15	.0570	4	2	1							2	4	5	6
16	.0508	4	2	1							2	4	5	7
17	.0452	4	2	1							2	4	6	8
18	.0403	4	2	1							2	5	7	9
19	.0358	4	2	1							2	6	8	10
20	.0319	6	4	2	1	1	1	1	1	2	4			
21	.0284	8	5	3	3	3	3	3	3	5				
22	.0253	10	7	5	5	5	5	5	6	8				
23	.0225	12	9	7	7	7	7							
24	.0201	16	13	11	10	10	10							

Brazed Tubes of sizes and gauges not listed above, prices quoted upon application.

Brazed Tubes of sizes between gauges or diameters take price of nearest gauge or diameter.

Square and Hexagon Tubes, over corresponding size and gauge of Round Tubes.....6c. advance

Rectangular Tubes, over the price of Round Tubes having a diameter equal to the narrower dimension of the Rectangular Tube and corresponding gauge.....6c. advance

Fancy Pattern Tubes, over corresponding size and gauge of Round Tubes, not less than.....8c. advance

Extra Fancy Pattern Tubes, over corresponding size and gauge of Round Tubes, not less than.....16c. advance

Open Seam Tubes are subject to the same extras, over Base, for diameter and gauge as Brazed Tubes.

Brazed Tubes cut to uniform specific lengths add the following advances:

Inc. 3/4" to 1"	Inc. 1" to 2"	Inc. 2" to 4"	Inc. 4" to 6"	Inc. 6" to 9"	Inc. 9" to 12"	Inc. 1' to 8'	8' and over
8c.	6c.	4c.	3c.	2c.	1 1/2c.	No charge	Special

Shorter than 3/4" special prices quoted upon application, not less than 8c. advance.

For Lists of Standard Sizes see pages 166 to 167.

Extra charges for items of less than 200 lbs., see page 99.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA BRAZED BRASS TUBE

Brown & Sharpe's Gauge the Standard

Outside Diameter

Ready for Immediate Shipment from Our Warehouse Stocks

Diameter of Tube, Inches	Thick-ness in Brown and Sharpe Gauge	Thick-ness in Decimal Equivalent Inches	Outside Diameter of Tube	Inside Diameter of Tube	Weight per Linear Foot	Round Hard in Temper	Round Soft in Temper	Square Hard in Temper	Nickel Plated Hard in Temper
2	14	.065	2.000	1.872	1.450	*	.....	.....	.....
2¼	14	.065	2.250	2.122	1.640	*	.....	.....	.....
2½	14	.065	2.500	2.372	1.820	*	.....	.....	.....
3	14	.065	3.000	2.872	2.200	*	.....	.....	.....
1½	15	.057	1.500	1.436	.960	*	.....	Items Marked with * Indicate Sizes Carried in Stock	
1¾	15	.057	1.750	1.636	1.130	*	.....	
¾	17	.045	.375	.285	.175	.....	*	.....	.....
⅞	17	.045	.437	.347	.154	.....	*	.....	.....
1½	17	.045	.500	.410	.241	.....	*	.....	.....
⅝	17	.045	.625	.535	.307	.....	.....	.....	.....
¾	17	.045	.750	.660	.373	*	.....	.....	.....
7/8	17	.045	.875	.785	.440	.....	.....	.....	.....
1	17	.045	1.000	.910	.506	*	.....	.....	.....
1⅛	17	.045	1.125	1.035	.572	.....	.....	.....	.....
1¼	17	.045	1.250	1.160	.638	*	.....	.....	.....
1⅝	17	.045	1.375	1.285	.705	*	.....	.....	.....
1½	17	.045	1.500	1.410	.771	*	.....	.....	.....
1⅝	17	.045	1.625	1.535	.837	*	.....	.....	.....
1¾	17	.045	1.750	1.660	.903	*	.....	.....	.....
2	17	.045	2.000	1.910	1.036	*	.....	.....	.....
2¼	17	.045	2.250	2.160	1.168	*	.....	.....	.....
2½	17	.045	2.500	2.410	1.301	*	.....	.....	*
¼	18	.040	.250	.170	.099	*	.....	.....	.....
⅓	18	.040	.312	.232	.128	*	.....	.....	.....
⅝	18	.040	.375	.295	.158	*	*	*	.....
⅞	18	.040	.437	.357	.187	*	*	.....	.....
1½	18	.040	.500	.420	.217	*	*	*	.....
1⅞	18	.040	.562	.482	.246	*	.....	.....	.....
⅝	18	.040	.625	.545	.276	*	.....	*	.....
¾	18	.040	.750	.670	.335	*	.....	*	.....
7/8	18	.040	.875	.795	.394	*	.....	*	.....
1	18	.040	1.000	.920	.453	*	.....	*	.....
1⅛	18	.040	1.125	1.045	.512	*	.....	.....	.....

See following page for additional sizes.

See page 165 for extras over Base Price.



ANACONDA BRAZED BRASS TUBE

Continued from Page 166

Diameter of Tube, Inches	Thick-ness in Brown and Sharpe Gauge	Thick-ness in Decimal Equivalent Inches	Outside Diameter of Tube	Inside Diameter of Tube	Weight per Linear Foot	Round Hard in Temper	Round Soft in Temper	Square Hard in Temper	Nickel Plated Hard in Temper
$\frac{5}{16}$	19	.036	.312	.240	.116	.....	*	.....	.....
$\frac{1}{2}$	20	.031	.500	.438	.175	*	.....	.....	.....
$\frac{5}{8}$	20	.031	.625	.563	.222	*	.....	.....	.....
$\frac{3}{4}$	20	.031	.750	.688	.269	*	.....	.....	.....
$\frac{7}{8}$	20	.031	.875	.813	.316	*	.....	.....	.....
1	20	.031	1.000	.936	.362	*	.....	.....	.....
$1\frac{1}{4}$	20	.031	1.250	1.188	.456	*	.....	.....	*
$1\frac{3}{8}$	20	.031	1.370	1.308	.503	*	.....	.....	*
$1\frac{1}{2}$	20	.031	1.500	1.438	.549	*	.....	.....	*
$1\frac{3}{4}$	20	.031	1.750	1.688	.643	*	.....	.....	*
2	20	.031	2.000	1.938	.737	*	.....	.....	*
$\frac{3}{8}$	21	.028	.375	.333	.112	*	.....	.....	.....
$\frac{1}{4}$	22	.025	.250	.200	.067	.....	*	.....	.....
$\frac{1}{2}$	22	.025	.500	.495	.141	*	.....	.....	.....
$\frac{5}{8}$	22	.025	.625	.575	.178	*	.....	*	.....
$\frac{3}{4}$	22	.025	.750	.600	.215	*	.....	*	.....
$\frac{7}{8}$	22	.025	.875	.825	.252	*	.....	*	.....
1	22	.025	1.000	.950	.289	*	.....	*	.....
$\frac{3}{8}$	24	.020	.375	.335	.084	*	.....	.....	.....
$\frac{1}{2}$	24	.020	.500	.460	.113	*	.....	.....	.....
$\frac{5}{8}$	24	.020	.625	.585	.142	*	.....	.....	.....
$\frac{3}{4}$	24	.020	.750	.710	.172	*	.....	.....	.....
$\frac{7}{8}$	24	.020	.875	.835	.201	*	.....	.....	.....
1	24	.020	1.000	.960	.231	*	.....	.....	.....

Reeded Tube—Fancy Pattern and Special Shaped Tube made to your specification promptly.

Sizes not listed made to order within mill limits.

Brazed Commercial Bronze Tube in above or other sizes for prompt mill shipment.

Iron Lined Tube and Open Seam Tube for prompt shipment.

Variations from above weights must be expected in practice.

See page 165 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MEMORANDA
BASE PRICES

ANACONDA RODS

MATERIAL	Date	Date	Date	Date	Date	Date	Date	Date
Yellow (High) Brass								
Commercial Bronze (90%)								
Copper (Oval Anodes)								
Copper (Drawn)								
Copper (Commutator)								
Red Brass—80% (Low)								
Nickel (German) Silver								
Grade 5%								
Grade 10%								
Grade 12%								
Grade 18%								
Ambrac (20 %Ni.)*								
Tobin Bronze*								
Naval Brass								
Yellow (Muntz) Metal								
Phosphor Bronze								
Grade "A" 5%								
Grade "B" 5%								
Grade "C" 8%								
Grade "D" 10%								
Manganese Bronze								
Coe Bronze								
Benedict Nickel								

*Trade-Mark Reg. U. S. Pat. Office.

ANACONDA RODS

ROUND	HALF OVAL
HEXAGON	SPECIAL
SQUARE	ANGLES
RECTANGULAR	CHANNELS
HALF ROUND	COMMUTATOR
DRILL GAUGE	
EXTRUDED	
WELDING	

YELLOW (HIGH) BRASS

COMMERCIAL BRONZE (90%-95%)

COPPER

NICKEL (GERMAN) SILVER

TOBIN BRONZE*

NAVAL BRASS

YELLOW (MUNTZ) METAL

PHOSPHOR BRONZE

MANGANESE BRONZE

BENEDICT NICKEL

AMBRAC*

COE BRONZE

SPECIAL BRONZES

*Trade-Mark Reg. U. S. Pat. Office.



ANACONDA FREE-TURNING BRASS ROD

Manufacturers of light hardware and assembly parts are finding Anaconda Free-Turning Brass Rod to be a more economical metal to use for screw machine work than steel. Notwithstanding that Brass is more expensive than steel, its use in fabrication has increased production and lowered the final costs for many products.

Brass is a non-corrodible metal, easy to machine and attractive in color. Steel, on the other hand, is more difficult to machine, with the result that tools wear more quickly and the tool upkeep is, therefore, higher. The superior machining quality of Anaconda Free-Turning Brass Rod permits many times the number of pieces to be produced in a fixed period of time. This increase in production becomes proportionately greater where several turning operations, or a combination of cutting, drilling and tapping are required, in order to produce the finish piece.

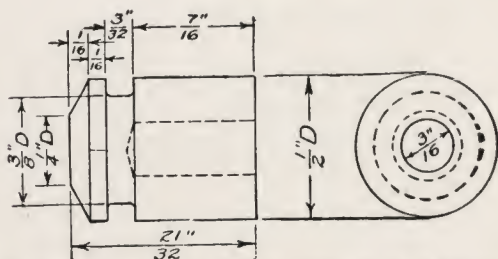
Brass can be more economically nickel plated and the plating is more durable; a smoother machine finish at high speed can be obtained with Brass than with steel; threads can be rolled on Brass along with the operation of forming and cutting; whereas steel requires an extra machining operation.

It may be that you, too, can increase production and cut costs through the use of Anaconda Free-Turning Brass Rods. A study of comparative estimates for any part that may now be made of steel will in many cases, particularly where a large amount of scrap is removed, be surprisingly favorable to the use of Anaconda Brass Rods.

There is usually one best metal for every manufacturing requirement. We are prepared to help you determine what that material is, and supply you metal in a uniformly dependable quality.

The parts illustrated are typical examples. Comparisons show that the ease and speed of machining Brass, the greater relative salvage value of scrap and the longer life of cutting tools, more than offset the higher cost of Brass.

List Extras for Anaconda Free-Turning Brass Rod will be found on page 172. Sizes Available for Immediate Shipment are Listed on page 173, and the Table of Weights on page 256.



Binding post (twice actual size) machined on a single spindle, semi-automatic lathe from round Anaconda Free-Turning Brass Rod (3/8" diameter)

COST FIGURES

For producing 1,000 Binding posts (illustrated)

	Steel	Brass
Material.....	\$1.41	\$6.35
Labor.....	6.10	1.40
Machine.....	2.19	.42
Total.....	9.70	8.17

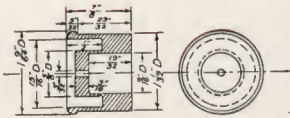
Saving through the use of Anaconda Brass Rods: \$1.53 per thousand pieces, or 15.8%

From a Nielson survey, 7-20-27

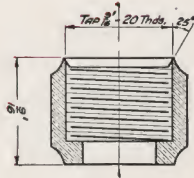
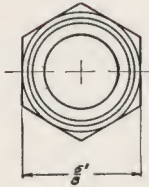


ANACONDA FREE-TURNING BRASS ROD

Continued from Page 170.



Valve Clapper

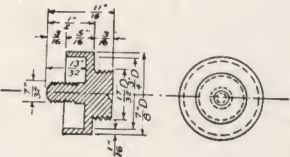


	Brass	Steel
Production per day . .	1350	300
Material cost per M. . .	\$9.45	\$ 4.05
Labor, machine and tool costs per M. . .	2.15	11.30
Total cost per M. . .	11.96	15.35

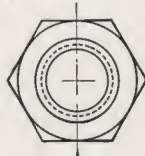
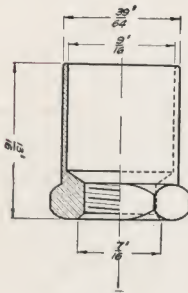
Cost reduction through the use of Anaconda Brass Rod: \$3.39 per M, or 22%

	Brass	Steel
Machine hours per M. . .	2.50	11.11
Material cost per M. . .	\$13.40	\$ 3.28
Labor, tool and machine cost per M. . .	3.58	16.58
Total cost per M. . . .	16.98	19.86
Less credit for scrap. .	4.72	0.27
Net cost per M.	12.26	19.59

Saving effected through the use of Hexagonal Anaconda Brass Rods: \$7.33 or 37.5%



Door Stop



	Brass	Steel
Production per day:		
First Operation	1000	400
Second Operation . . .	500	100
Material cost per M. . .	\$39.15	\$12.00
Labor, machine and tool costs per M. . .	18.19	82.78
Total costs per M. . . .	57.34	94.78

Cost reduction through the use of Anaconda Brass Rod: \$37.44 per M, or 39.5%

From a survey by A. C. Neilson Co., 7-30-27

	Brass	Steel
Machine hours per M . .	4.55	16.66
Material cost per M. . .	\$16.75	\$ 4.01
Labor, tool and machine cost per M. . . .	6.52	24.86
Total cost per M. . . .	23.27	28.87
Less credit for scrap. . .	6.40	0.37
Net cost per M.	16.87	28.50

Saving effected through the use of Anaconda Brass Rods: \$11.63 or 41%

From a survey by A. C. Neilson Co., 11-16-27

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA BRASS AND COMMERCIAL BRONZE RODS

Brown & Sharpe's Gauge the Standard

Base Prices Quoted Upon Application

Extras Over Base Prices, Cents per Pound

Size	No. 11 (.0907) to $\frac{1}{8}$ "	Inc. $\frac{1}{8}$ " to $\frac{1}{4}$ "	Inc. $\frac{1}{4}$ " to $\frac{3}{8}$ "	Inc. $\frac{3}{8}$ " to $\frac{1}{2}$ "	Inc. $\frac{1}{2}$ " to $2\frac{1}{4}$ "	Inc. $2\frac{1}{4}$ " Inc. $3\frac{1}{2}$ "
Round	7	4 $\frac{1}{2}$	2 $\frac{1}{2}$	1	Base	1 $\frac{1}{2}$
Hexagon	9	6 $\frac{1}{2}$	4 $\frac{1}{2}$	2*	1*	2 $\frac{1}{2}$ *
Octagon and Square	9	6 $\frac{1}{2}$	4 $\frac{1}{2}$	3	2	3 $\frac{1}{2}$
Rectangular and Half Round	11	8 $\frac{1}{2}$	6 $\frac{1}{2}$	5	4	..

*Extras shown for Hexagon Rods $\frac{3}{8}$ in. and larger, apply only to Standard Brass Rods. For other alloys add to these extras 1c. per pound.

Sizes larger than $3\frac{1}{2}$ in., prices quoted upon application.

Prices of Rectangular and Half Round are governed by the thinner dimension.

Red Brass and Bronze Rectangular Rods 1 in. and wider, prices quoted upon application.

Special Shaped Rods, other than listed above, prices quoted upon application.

Rods $\frac{1}{4}$ in. and larger cut to uniform specific lengths, add the following advances:

Inc. 1" to 2"	Inc. 2" to 4"	Inc. 4" to 6"	Inc. 6" to 9"	Inc. 9" to 12"	Inc. 1' to 2 feet	Inc. 2 feet to 12 feet
6c.	4c.	3c.	2c.	1 $\frac{1}{2}$ c.	1c.	$\frac{1}{2}$ c.

Rods smaller than $\frac{1}{4}$ in. cut to uniform specific lengths, add double the above advances.

For sizes smaller than No. 11, consult Wire List.

ANACONDA DRAWN BRASS AND COMMERCIAL BRONZE ANGLES AND CHANNELS

Angles, Plain and of One Angle; Channels, Plain and of Three Sides Only; Half Round and Half Oval Only

Brown & Sharpe's Gauge the Standard

Base Prices Quoted Upon Application

Extras Over Base Prices, Cents per Pound

Width of Widest Dimension	Nos. 8 (.1285) and 9 (.1144)	Nos. 10 (.1019) and 11 (.0907)	Nos. 12 (.0808) and 13 (.0719)	Nos. 14 (.0640) to and inc. 19 (.0358)	No. 20 (.0319)	No. 21 (.0284)	No. 22 (.0253)	No. 23 (.0225)	No. 24 (.0201)
Inc. $\frac{3}{8}$ " to $\frac{1}{2}$ "	10	8	6	4	6	8	10	12	16
Inc. $\frac{1}{2}$ " to $\frac{3}{4}$ "	8	6	4	2	4	5	7	9	13
Inc. $\frac{3}{4}$ " to 1" Inc.	6	4	2	Base	1	3	5	7	10
Over 1" to $1\frac{1}{2}$ " Inc.	8	6	4	2	3	5	7	9	12

Thicker than No. 8, narrower than $\frac{3}{8}$ in., or wider than $1\frac{1}{2}$ in., prices quoted upon application.

Angles and Channels between gauges take price of nearest gauge.

Mouldings and Special Shapes other than listed, prices quoted upon application.

Angles and Channels cut to uniform specific lengths, add the following advances:

Inc. $\frac{3}{4}$ " to 1"	Inc. 1" to 2"	Inc. 2" to 4"	Inc. 4" to 6"	Inc. 6" to 9"	Inc. 9" to 12"	Inc. 1' to 20'	20' and over
8c.	6c.	4c.	3c.	2c.	1 $\frac{1}{2}$ c.	No charge	Special

Shorter than $\frac{3}{4}$ in., prices quoted upon application, not less than 8c. extra.

Extras for items of less than 200 lbs., see page 99.

For Lists of Standard Sizes see pages 173 to 179.



ANACONDA FREE-TURNING BRASS ROD

ROUND—HEXAGON—SQUARE—HALF ROUND—HALF OVAL

For Immediate Shipment from Our Warehouse Stocks

Lengths 8-12 Feet

Dia. of Rods Inches	Decimal Equivalent in Inches	Weight in Pounds per Linear Foot—Indicates Sizes Carried in Stock						
		Round	Hexagon	Square	Half Round		Half Oval	
☆	.062	.011	.....	.....	Size in.	Weight	Size in.	Weight
☆	.093	.028	.....	.....	.....	.....	.....	.....
1/8	.125	.045	.050	.057	.....	.....	.....	.....
☆	.156	.073	.....	.....	.....	.....	.....	.....
☆	.187	.101	.112	.130	.....	.....	.....	.....
☆	.218	.140	.150	.....	.....	.....	.....	.....
1/4	.250	.181	.199	.230	1/4 x 1/8	.090	.....	.....
☆	.281	.231	.....	.....	.....	.....	.....	.....
☆	.312	.282	.312	.360	1/8 x 3/16	.140	.....	.....
3/16	.343	.344	.....	.....	.....	.....	.....	.....
3/16	.375	.407	.449	.518	3/8 x 1/8	.202	3/8	.101
3/16	.406	.480	.....	.....	.....	.....	.....	.....
☆	.437	.554	.611	.706	1/8 x 1/2	.275	.....	.....
3/16	.468	.639	.....	.....	.....	.....	.....	.....
1/2	.500	.724	.798	.922	1/2 x 1/4	.362	1/2	.182
3/16	.531	.820	.....	.....	.....	.....	.....	.....
☆	.562	.916	1.011	1.167	.....	.....	.....	.....
3/16	.593	1.023	.....	.....	.....	.....	.....	.....
3/16	.625	1.130	1.248	1.441	3/8 x 1/8	.570	3/8	.281
3/16	.656	1.249	.....	.....	.....	.....	.....	.....
3/16	.687	1.369	1.510	1.744	.....	.....	.....	.....
3/16	.750	1.630	1.797	2.075	3/4 x 3/8	.820	3/4	.398
3/16	.812	1.913	2.109	2.435	.....	.....	.....	.....
3/8	.875	2.218	2.446	2.824	3/8 x 1/8	1.110	3/8	.500
3/16	.937	2.546	2.808	3.240	.....	.....	.....	.....
1	1.000	2.897	3.195	3.689	1 x 1/2	1.450	1	.675
1 1/8	1.062	3.271	3.607	4.164	.....	.....	.....	.....
1 1/8	1.125	3.667	4.043	4.669	1 1/8 x 1/8	1.830	.....	.....
1 1/8	1.187	4.086	4.505	5.202	.....	.....	.....	.....
1 1/4	1.250	4.527	4.992	5.764	1 1/4 x 3/8	2.250	1 1/4	.998
1 1/8	1.312	4.991	5.503	6.355	.....	.....	.....	.....
1 3/8	1.375	5.478	6.040	6.974	1 3/8 x 1/2	2.750	.....	.....
1 1/8	1.437	5.987	6.602	.....	.....	.....	.....	.....
1 1/2	1.500	6.519	7.188	8.300	1 1/2 x 3/4	3.250	.....	.....
1 3/8	1.562	7.070	7.800	.....	.....	.....	.....	.....
1 3/8	1.625	7.651	8.436	9.741	.....	.....	.....	.....
1 3/4	1.750	8.873	9.784	11.300	.....	.....	.....	.....
1 3/8	1.875	10.190	11.230	.....	.....	.....	.....	.....
2	2.000	11.590	12.780	14.760	.....	.....	.....	.....
2 1/8	2.125	13.080	14.430	.....	.....	.....	.....	.....
2 1/4	2.250	14.670	16.170	.....	.....	.....	.....	.....
2 3/8	2.375	16.340	18.020	.....	.....	.....	.....	.....
2 1/2	2.500	18.110	19.970	.....	.....	.....	.....	.....
2 3/4	2.750	21.910	.....	.....	.....	.....	.....	.....
3	3.000	26.080	.....	.....	.....	.....	.....	.....

Sizes other than above can be shipped promptly from Mill.
Variations from above weights must be expected in practice.
Complete table of weights on page 256.
See page 172 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA BRASS DRILL GAUGE RODS

36 Inch Lengths

STANDARD SIZES

PROMPT SHIPMENT

Number	Size of Number in Decimals of Inch	Number	Size of Number in Decimals of Inch	Number	Size of Number in Decimals of Inch
1	.2280	28	.1405	55	.0520
2	.2210	29	.1360	56	.0465
3	.2130	30	.1285	57	.0430
4	.2090	31	.1200	58	.0420
5	.2055	32	.1160	59	.0410
6	.2040	33	.1130	60	.0400
7	.2010	34	.1110	61	.0390
8	.1990	35	.1100	62	.0380
9	.1960	36	.1065	63	.0370
10	.1935	37	.1040	64	.0360
11	.1910	38	.1015	65	.0350
12	.1890	39	.0995	66	.0330
13	.1850	40	.0980	67	.0320
14	.1820	41	.0960	68	.0310
15	.1800	42	.0935	69	.02925
16	.1770	43	.0890	70	.0280
17	.1730	44	.0860	71	.0260
18	.1695	45	.0820	72	.0250
19	.1660	46	.0810	73	.0240
20	.1610	47	.0785	74	.0225
21	.1590	48	.0760	75	.0210
22	.1570	49	.0730	76	.0200
23	.1540	50	.0700	77	.0180
24	.1520	51	.0670	78	.0160
25	.1495	52	.0635	79	.0145
26	.1470	53	.0595	80	.0135
27	.1440	54	.0550		

Also in Stubs' Gauge Sizes:

No. 4 (.238) to No. 11 (.120) inclusive—10 feet long.

No. 12 (.109) to No. 18 (.049) inclusive—6 feet long.

Other sizes made to order.

See page 172 for extras over Base Price.



ANACONDA HARD DRAWN RECTANGULAR YELLOW BRASS ROD

Stock Sizes Ready to Ship From Our Warehouse Stocks

In Lengths About 8-12 Feet

Size of Bar, Inches	Weight per Linear Foot	Size of Bar, Inches	Weight per Linear Foot	Size of Bar, Inches	Weight per Linear Foot
$\frac{1}{8} \times \frac{1}{4}$	.119	$\frac{3}{16} \times \frac{7}{8}$	.600	$\frac{1}{4} \times 2\frac{1}{2}$	2.388
$\frac{1}{8} \times \frac{5}{16}$	.143	$\frac{3}{16} \times 1$	.717	$\frac{1}{4} \times 3$	2.868
$\frac{1}{8} \times \frac{3}{8}$	.170	$\frac{1}{8} \times 1\frac{1}{8}$	.795	$\frac{5}{16} \times \frac{1}{2}$	.595
$\frac{1}{8} \times \frac{1}{2}$	.238	$\frac{3}{16} \times 1\frac{1}{4}$	.870	$\frac{5}{16} \times \frac{3}{4}$	.855
$\frac{1}{8} \times \frac{5}{8}$	.286	$\frac{1}{8} \times 1\frac{1}{2}$	1.167	$\frac{5}{16} \times 1$	1.195
$\frac{1}{8} \times \frac{3}{4}$	.342	$\frac{3}{16} \times 1\frac{3}{4}$	1.254	$\frac{5}{16} \times 1\frac{1}{4}$	1.450
$\frac{1}{8} \times \frac{7}{8}$	.400	$\frac{3}{16} \times 2$	1.434	$\frac{5}{16} \times 1\frac{1}{2}$	1.795
$\frac{1}{8} \times 1$	.478	$\frac{1}{8} \times 2\frac{1}{2}$	1.791	$\frac{5}{16} \times 2$	2.390
$\frac{1}{8} \times 1\frac{1}{8}$	.530	$\frac{3}{16} \times 3$	2.151	$\frac{3}{8} \times \frac{1}{2}$	.714
$\frac{1}{8} \times 1\frac{1}{4}$	.580	$\frac{1}{4} \times \frac{3}{8}$	.342	$\frac{3}{8} \times \frac{3}{4}$	1.026
$\frac{1}{8} \times 1\frac{1}{2}$	.718	$\frac{1}{4} \times \frac{1}{2}$	.476	$\frac{3}{8} \times 1$	1.434
$\frac{1}{8} \times 1\frac{3}{4}$	.836	$\frac{1}{4} \times \frac{5}{8}$	.572	$\frac{3}{8} \times 1\frac{1}{4}$	1.640
$\frac{1}{8} \times 2$	.956	$\frac{1}{4} \times \frac{3}{4}$	.684	$\frac{3}{8} \times 1\frac{1}{2}$	2.154
$\frac{1}{8} \times 2\frac{1}{2}$	1.194	$\frac{1}{4} \times \frac{7}{8}$	.800	$\frac{3}{8} \times 2$	2.868
$\frac{1}{8} \times 3$	1.434	$\frac{1}{4} \times 1$	.956	$\frac{1}{2} \times \frac{3}{4}$	1.368
$\frac{3}{16} \times \frac{3}{8}$	.255	$\frac{1}{4} \times 1\frac{1}{4}$	1.160	$\frac{1}{2} \times 1$	1.912
$\frac{3}{16} \times \frac{1}{2}$	.357	$\frac{1}{4} \times 1\frac{1}{2}$	1.436	$\frac{1}{2} \times 1\frac{1}{4}$	2.320
$\frac{3}{16} \times \frac{5}{8}$	.429	$\frac{1}{4} \times 1\frac{3}{4}$	1.672	$\frac{1}{2} \times 1\frac{1}{2}$	2.872
$\frac{3}{16} \times \frac{3}{4}$	.513	$\frac{1}{4} \times 2$	1.912	$\frac{1}{2} \times 2$	3.824

Weight per foot indicates sizes carried in stock.

See page 105 for Yellow Brass in Slit Stock $\frac{1}{16}$ " to $\frac{1}{8}$ " thick.

Sizes other than above mentioned made to order promptly.

Variations from above weights must be expected in practice.

See page 172 for extras over Base Price.



ANACONDA PHOSPHOR BRONZE RODS

Brown & Sharpe's Gauge the Standard

Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

Size	No. 11 (.0907) to $\frac{1}{8}$ "	Inc. $\frac{1}{8}$ " to $\frac{1}{4}$ "	Inc. $\frac{1}{4}$ " to $\frac{3}{8}$ "	Inc. $\frac{3}{8}$ " to $\frac{1}{2}$ "	Inc. $\frac{5}{8}$ " Inc. 1"	Over 1" Inc. 2"
Round	10 $\frac{1}{2}$	7	4	1 $\frac{1}{2}$	Base	5
Hexagon	13 $\frac{1}{2}$	10	7	4 $\frac{1}{2}$	3	8
Octagon and Square	13 $\frac{1}{2}$	10	7	4 $\frac{1}{2}$	....	....
Rectangular and Half Round	16 $\frac{1}{2}$	13	10	....	....	....

Prices of Rectangular and Half Round are governed by the thinner dimension.

Rods $\frac{1}{4}$ " and larger cut to uniform specific lengths, add the following advances:

Inc. 1" to 2"	Inc. 2" to 4"	Inc. 4" to 6"	Inc. 6" to 9"	Inc. 9" to 12"	Inc. 1' to 2'	Inc. 2' to 12'
9c	6c	4 $\frac{1}{2}$ c	3c	2c	1 $\frac{1}{2}$ c	1c

Rods smaller than $\frac{1}{4}$ " cut to uniform specific lengths, add double the above advances.

For sizes of Phosphor Bronze Rod carried in stock refer to page 178.

ANACONDA NICKEL SILVER RODS

Brown & Sharpe's Gauge the Standard

Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

Size	No. 11 (.0907) to $\frac{1}{8}$ "	Inc. $\frac{1}{8}$ " to $\frac{1}{4}$ "	Inc. $\frac{1}{4}$ " to $\frac{3}{8}$ "	Inc. $\frac{3}{8}$ " to $\frac{1}{2}$ "	Inc. $\frac{5}{8}$ " Inc. 1"
Round	18	16	14	12	10
Hexagon, Octagon and Square	26	24	22	20	....
†Rectangular and Half Round	30	28	26	....	....

Sizes larger than 1", prices quoted upon application.

†Prices of Rectangular and Half Round are governed by the thinner dimension.

Special Shaped Nickel Silver Rods, other than listed above, prices quoted upon application, not less than price of Rectangular and Half Round.

Nickel Silver Rods $\frac{1}{4}$ " to and inc. 1" cut to uniform specific lengths, add the following advances:

Inc. 1" to 2"	Inc. 2" to 4"	Inc. 4" to 6"	Inc. 6" to 9"	Inc. 9" to 12"	Inc. 1' to 2'	Inc. 2' to 12'
12c	8c	6c	4c	3c	2c	1c

Nickel Silver Rods smaller than $\frac{1}{4}$ ", cut to uniform specific lengths, add double the above advances.

For stock sizes of Nickel Silver Rod see page 177.

Extras for items of less than 200 lbs., see page 99.



ANACONDA NICKEL (GERMAN) SILVER RODS

FREE TURNING

Standard Sizes for Prompt Shipment

In Lengths 10-12 Feet

Diameter of Rod, Inches	Decimal Equivalent in Inches	Weight per Linear Foot Indicates Sizes Carried in Stock		
		Round	Hexagon	Square
$\frac{3}{32}$	.093	.028	.....	.....
$\frac{1}{8}$	.125	.045	.050	.057
$\frac{5}{32}$	.156	.073	.....	.....
$\frac{3}{16}$	.187	.101	.112	.130
$\frac{7}{32}$	.218	.140	.....	.....
$\frac{1}{4}$	.250	.181	.199	.230
$\frac{9}{32}$	.281	.231	.....	.....
$\frac{5}{16}$	.312	.282	.312	.360
$\frac{3}{8}$	.375	.407	.449	.518
$\frac{7}{16}$	.437	.554	.611	.706
$\frac{1}{2}$	.500	.724	.798	.992
$\frac{9}{16}$	.562	.916	1.011	1.167
$\frac{5}{8}$	.625	1.130	1.248	1.441
$\frac{11}{16}$	.687	1.369	.....	.....
$\frac{3}{4}$	.750	1.630	1.797	.....
$\frac{7}{8}$	.875	2.218	2.446	.....
1	1.000	2.897	3.195	.....
$1\frac{1}{8}$	1.125	3.667	4.043	.....
$1\frac{1}{4}$	1.250	4.527	4.992	.....
$1\frac{3}{8}$	1.375	5.478	.....	.....
$1\frac{1}{2}$	1.500	6.519	.....	.....

Octagon Rods, Rectangular Bars and Special Shaped Nickel Silver 5 to 20 per cent Grades, made to order. Prices upon application.

See page 256 for full Table of Weights.

Variations from above weights must be expected in practice.

See page 176 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA DRAWN YELLOW BRASS ANGLES AND CHANNELS

All Measurements are on the Outside

Immediate Shipment from Our Warehouse Stocks

Lengths 12-14 Feet

ANGLES			CHANNELS		
Size		Weight per Linear Foot	Size		Weight per Linear Foot
Outside Dimensions, Inches	Thickness, Inches		Outside Dimensions, Inches	Thickness, Inches	
$\frac{3}{8}$ x $\frac{3}{8}$	$\frac{1}{16}$	.171	$\frac{3}{8}$ x $\frac{1}{2}$ x $\frac{3}{8}$	18 B. & S.	.179
$\frac{1}{2}$ x $\frac{1}{2}$	$\frac{1}{16}$	.239	$\frac{3}{8}$ x $\frac{5}{8}$ x $\frac{3}{8}$	18 B. & S.	.198
$\frac{5}{8}$ x $\frac{5}{8}$	$\frac{1}{16}$	.265	$\frac{3}{8}$ x $\frac{3}{4}$ x $\frac{3}{8}$	18 B. & S.	.215
$\frac{3}{4}$ x $\frac{3}{4}$	$\frac{1}{16}$	.359	$\frac{3}{8}$ x $\frac{1}{2}$ x $\frac{3}{8}$	$\frac{1}{16}$	.295
$\frac{7}{8}$ x $\frac{7}{8}$	$\frac{1}{16}$	.418	$\frac{3}{8}$ x $\frac{5}{8}$ x $\frac{3}{8}$	$\frac{1}{16}$	.340
1 x 1	$\frac{1}{16}$	.428	$\frac{3}{8}$ x $\frac{3}{4}$ x $\frac{3}{8}$	$\frac{1}{16}$	.359
$1\frac{1}{4}$ x $1\frac{1}{4}$	$\frac{1}{16}$	.597	$\frac{3}{8}$ x $\frac{1}{2}$ x $\frac{3}{8}$	$\frac{1}{8}$	.580
$1\frac{1}{2}$ x $1\frac{1}{2}$	$\frac{1}{16}$	.717	$\frac{3}{8}$ x $\frac{5}{8}$ x $\frac{3}{8}$	$\frac{1}{8}$	.700
$\frac{3}{4}$ x $\frac{3}{4}$	$\frac{1}{8}$	.718	$\frac{3}{8}$ x $\frac{3}{4}$ x $\frac{3}{8}$	$\frac{1}{8}$	.718
1 x 1	$\frac{1}{8}$	.956	$\frac{1}{2}$ x 1 x $\frac{1}{2}$	$\frac{1}{8}$	.956
$1\frac{1}{4}$ x $1\frac{1}{4}$	$\frac{1}{8}$	1.194	$\frac{1}{2}$ x $1\frac{1}{4}$ x $\frac{1}{2}$	$\frac{1}{8}$	1.070
$1\frac{1}{2}$ x $1\frac{1}{2}$	$\frac{1}{8}$	1.434	$\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{1}{2}$	$\frac{1}{8}$	1.194
2 x 2	$\frac{1}{8}$	1.912	* Base		

In addition to the above we can furnish many other sizes in Brass or Commercial Bronze promptly from the Mill.

Special Shapes to your specifications made to order promptly.

See page 172 for extras over Base Price.

ANACONDA PHOSPHOR BRONZE RODS

Standard Sizes. Immediate Shipment from Our Warehouse Stocks

Lengths 10-12 Feet

Diameter of Rods, Inches	Decimal Equivalent in Inches	Weight per Linear Foot Indicates Carried in Stock		Diameter of Rods, Inches	Decimal Equivalent in Inches	Weight per Linear Foot Indicates Carried in Stock	
		Round	Hexagon			Round	Hexagon
$\frac{3}{16}$	.093	.030	.....	$\frac{1}{16}$	.687	1.432	1.575
$\frac{1}{8}$	.125	.047	.....	$\frac{3}{16}$	.750	1.705	1.870
$\frac{3}{16}$	.187	.106	.....	$\frac{7}{16}$	.875	2.320	2.552
$\frac{1}{4}$	.250	.189	.207	1	1.000	3.030	3.333
$\frac{5}{16}$	.312	.295	.324	$1\frac{1}{8}$	1.125	3.835	4.213
$\frac{3}{8}$	.375	.426	.468	$1\frac{1}{4}$	1.250	4.735	5.203
$\frac{7}{16}$	.437	.580	.638	$1\frac{3}{8}$	1.375	5.729	.....
$\frac{1}{2}$	.500	.757	.832	$1\frac{1}{2}$	1.500	6.818	7.491
$\frac{9}{16}$	.562	.958	1.053	$1\frac{3}{4}$	1.750	9.281	.....
$\frac{5}{8}$	.625	1.184	1.298	2	2.000	12.120	.....

Rounds over 2" in diameter made to order. Squares, Rectangulars, Special Shapes and Piston Finish Sizes made to order.

Prices of Rectangular and Half Round are governed by thinner dimension.

Variations from above weights must be expected in practice.

See page 176 for extras over Base Price.



ANACONDA HARD DRAWN RECTANGULAR COMMERCIAL BRONZE ROD

Stock Sizes. Immediate Shipment from Our Warehouse Stocks

Lengths About 12-14 Feet

Size of Bar, Inches	Weight per Linear Foot	Size of Bar, Inches	Weight per Linear Foot	Size of Bar, Inches	Weight per Linear Foot
$\frac{1}{8}$ x $\frac{3}{8}$	.180	$\frac{3}{16}$ x 2	1.446	$\frac{5}{16}$ x $1\frac{1}{2}$	1.807
$\frac{1}{8}$ x $\frac{1}{2}$	.241	$\frac{1}{4}$ x $\frac{3}{8}$	.360	$\frac{5}{16}$ x 2	2.450
$\frac{1}{8}$ x $\frac{5}{8}$	.301	$\frac{1}{4}$ x $\frac{1}{2}$	.482	$\frac{3}{8}$ x $\frac{1}{2}$	.713
$\frac{1}{8}$ x $\frac{3}{4}$	.361	$\frac{1}{4}$ x $\frac{5}{8}$	.602	$\frac{3}{8}$ x $\frac{3}{4}$	1.033
$\frac{1}{8}$ x 1	.482	$\frac{1}{4}$ x $\frac{3}{4}$	.722	$\frac{3}{8}$ x 1	1.366
$\frac{1}{8}$ x $1\frac{1}{4}$	.602	$\frac{1}{4}$ x 1	.964	$\frac{3}{8}$ x $1\frac{1}{4}$	1.806
$\frac{1}{8}$ x $1\frac{1}{2}$	.723	$\frac{1}{4}$ x $1\frac{1}{4}$	1.204	$\frac{3}{8}$ x $1\frac{1}{2}$	2.169
$\frac{1}{8}$ x 2	.964	$\frac{1}{4}$ x $1\frac{1}{2}$	1.446	$\frac{3}{8}$ x 2	2.892
$\frac{3}{16}$ x $\frac{3}{8}$	.270	$\frac{1}{4}$ x 2	1.928	$\frac{1}{2}$ x $\frac{3}{4}$	1.444
$\frac{3}{16}$ x $\frac{1}{2}$	.362	$\frac{5}{16}$ x $\frac{3}{8}$	.450	$\frac{1}{2}$ x 1	1.928
$\frac{3}{16}$ x $\frac{5}{8}$	.451	$\frac{5}{16}$ x $\frac{1}{2}$	.603	$\frac{1}{2}$ x $1\frac{1}{4}$	2.408
$\frac{3}{16}$ x $\frac{3}{4}$	.550	$\frac{5}{16}$ x $\frac{5}{8}$	.752	$\frac{1}{2}$ x $1\frac{1}{2}$	2.892
$\frac{3}{16}$ x 1	.723	$\frac{5}{16}$ x $\frac{3}{4}$	.911	$\frac{1}{2}$ x 2	3.856
$\frac{3}{16}$ x $1\frac{1}{4}$	.903	$\frac{5}{16}$ x 1	1.205		
$\frac{3}{16}$ x $1\frac{1}{2}$	1.084	$\frac{5}{16}$ x $1\frac{1}{4}$	1.505		

Other sizes not listed can be shipped promptly from mill.

ANACONDA COMMERCIAL BRONZE RODS ROUND AND SQUARE

Standard Sizes. Immediate Shipment from Our Warehouse Stocks

Diameter of Rods Inches	Weight per Linear Foot		Diameter of Rods Inches	Weight per Linear Foot	
	Round	Square		Round	Square
$\frac{1}{8}$	.047	.....	$\frac{9}{16}$	.958	.....
$\frac{3}{16}$	.106	.135	$\frac{5}{8}$	1.184	1.507
$\frac{1}{4}$	.189	.241	$\frac{3}{4}$	1.705	2.170
$\frac{5}{16}$	.295	.376	$\frac{7}{8}$	2.320	2.954
$\frac{3}{8}$	.426	.542	1	3.030	3.858
$\frac{7}{16}$	.580	.....	$1\frac{1}{8}$	3.835	.....
$\frac{1}{2}$	.757	.964	$1\frac{1}{4}$	4.735	.....

Sizes shown with weights indicate stock shipment; other sizes made to order.
Variation from above weights must be expected in practice.

See page 172 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA DRAWN COPPER

RECTANGULAR BARS AND STRIPS, ROUNDS, SQUARES, HEXAGONS
AND SPECIAL DRAWN SHAPES

Base Price Quoted upon Application

Extras Over Base Price, Cents per Pound

ROUND RODS

No. 11 B. & S. (.0907 in.) to 1/8 in.	Inc. 1/8 in. to 3/16 in.	Inc. 3/16 in. to 1/4 in.	Inc. 1/4 in. to 3 in.
6 1/2	3	1	Base

RECTANGULAR RODS

Width	Inc. 1/4 in. to 1/2 in.	Inc. 1/2 in. to 3/4 in.	Inc. 3/4 in. to 4 in.	Inc. 4 in. Inc. 6 in.
Thickness				
1/4 in. and thicker	2 1/2	1 1/4	3/4	3/4
3/16 in. to 1/4 in.	3	1 1/2	1	1
1/8 in. to 3/16 in.	3 1/2	2	1 1/2	1 1/2

Square, Hexagon and Special Shaped Rods, prices quoted upon application.
See page 181 for Standard Sizes.

ANACONDA HOT ROLLED COPPER RODS

Straight Mill Lengths, for Forging Purposes

Base Price Quoted upon Application

Extras Over Base Price, Cents per Pound

Round, left black.....	Base
Round, cleaned.....	1/4c Advance
Round, left black, one draw.....	1/2c Advance
Round, cleaned, one draw.....	3/4c Advance
Rectangular and Square, over price of Round Rods.....	3/4c Advance

Cutting to specific lengths, same extras as for Drawn Copper.

Rods can be Hot Rolled from 1/4 in. to 5 in. diameter by eighths.

Hot Rolled Rods in sizes other than eighths, require one draw and are priced accordingly.

ANACONDA HOT ROLLED COPPER WIRE RODS, FOR REDRAWING

Prices quoted upon application.

Extra charges for items of less than 200 lbs., see page 99.



ANACONDA HARD DRAWN ROUND COPPER RODS
STANDARD SIZES
Lengths 10-12 Feet

Immediate Shipment from Our Warehouse Stocks

Diameter of Rods Inches	Decimal Equivalent Inches	Weight Per Linear Foot	Diameter of Rods Inches	Decimal Equivalent Inches	Weight Per Linear Foot
$\frac{1}{16}$	.125	.047	$\frac{7}{8}$	.875	2.320
$\frac{3}{16}$	.187	.106	$\frac{15}{16}$	.937	2.663
$\frac{1}{4}$	.250	.189	1	1.000	3.030
$\frac{5}{16}$	.312	.295	$1\frac{1}{16}$	1.065	3.421
$\frac{3}{8}$	.375	.426	$1\frac{1}{8}$	1.125	3.835
$\frac{7}{16}$	.437	.580	$1\frac{1}{4}$	1.250	4.735
$\frac{1}{2}$	.500	.757	$1\frac{3}{8}$	1.375	5.729
$\frac{9}{16}$	.562	.958	$1\frac{1}{2}$	1.500	6.818
$\frac{5}{8}$	.625	1.184	$1\frac{5}{8}$	1.625	8.002
$\frac{11}{16}$	.687	1.432	$1\frac{3}{4}$	1.750	9.281
$\frac{3}{4}$	.750	1.705	2	2.000	12.120
$\frac{13}{16}$	.812	2.001			

Other diameters made to order promptly.

ANACONDA HARD DRAWN RECTANGULAR
COPPER BAR

STANDARD SIZES
Lengths 10-14 Feet

Immediate Shipment from Our Warehouse Stocks

Size of Bar in Inches	Weight Per Linear Foot	Size of Bar in Inches	Weight Per Linear Foot	Size of Bar in Inches	Weight Per Linear Foot	Size of Bar in Inches	Weight Per Linear Foot	Size of Bar in Inches	Weight Per Linear Foot
$\frac{1}{16}$ x $\frac{3}{8}$	.100	$\frac{1}{16}$ x $\frac{1}{2}$	.120	$\frac{1}{16}$ x $\frac{5}{8}$	.150	$\frac{1}{16}$ x $\frac{3}{4}$	.180	$\frac{1}{16}$ x $\frac{7}{8}$	.211
$\frac{3}{16}$ x $\frac{3}{8}$	.140	$\frac{3}{16}$ x $\frac{1}{2}$	.180	$\frac{3}{16}$ x $\frac{5}{8}$	.225	$\frac{3}{16}$ x $\frac{3}{4}$	.270	$\frac{3}{16}$ x $\frac{7}{8}$	.316
$\frac{1}{4}$ x $\frac{3}{8}$	.180	$\frac{1}{4}$ x $\frac{1}{2}$	.241	$\frac{1}{4}$ x $\frac{5}{8}$	.301	$\frac{1}{4}$ x $\frac{3}{4}$	.361	$\frac{1}{4}$ x $\frac{7}{8}$	.422
$\frac{5}{16}$ x $\frac{3}{8}$	.271	$\frac{5}{16}$ x $\frac{1}{2}$	.361	$\frac{5}{16}$ x $\frac{5}{8}$	.452	$\frac{5}{16}$ x $\frac{3}{4}$	.542	$\frac{5}{16}$ x $\frac{7}{8}$	.633
.....	.....	$\frac{3}{8}$ x $\frac{1}{2}$	.482	$\frac{3}{8}$ x $\frac{5}{8}$	.602	$\frac{3}{8}$ x $\frac{3}{4}$	.723	$\frac{3}{8}$ x $\frac{7}{8}$	.844
.....	.....	$\frac{1}{2}$ x $\frac{1}{2}$	.600	$\frac{1}{2}$ x $\frac{5}{8}$	.750	$\frac{1}{2}$ x $\frac{3}{4}$	.900	$\frac{1}{2}$ x $\frac{7}{8}$	1.055
.....	.....	.....	.....	$\frac{5}{8}$ x $\frac{5}{8}$	.894	$\frac{5}{8}$ x $\frac{3}{4}$	1.084	$\frac{5}{8}$ x $\frac{7}{8}$	1.266
.....	.....	.....	.....	$\frac{1}{2}$ x $\frac{3}{4}$	1.204	$\frac{1}{2}$ x $\frac{3}{4}$	1.446	$\frac{1}{2}$ x $\frac{7}{8}$	1.688
$\frac{1}{8}$ x 1	.241	.....	.....	.....	.....	.....	.....	.....	.....
$\frac{3}{16}$ x 1	.360	$\frac{3}{16}$ x $1\frac{1}{4}$	.400	$\frac{1}{4}$ x $1\frac{1}{2}$	.440	$\frac{3}{16}$ x $1\frac{3}{4}$	.580	$\frac{1}{8}$ x 2	.720
$\frac{1}{4}$ x 1	.482	$\frac{1}{8}$ x $1\frac{1}{4}$	.602	$\frac{3}{8}$ x $1\frac{1}{2}$	.723	$\frac{1}{8}$ x $1\frac{3}{4}$	.844	$\frac{3}{16}$ x 2	.964
$\frac{5}{16}$ x 1	.723	$\frac{3}{16}$ x $1\frac{1}{4}$	.904	$\frac{1}{2}$ x $1\frac{1}{2}$	1.085	$\frac{5}{16}$ x $1\frac{3}{4}$	1.266	$\frac{1}{4}$ x 2	1.447
$\frac{3}{8}$ x 1	.964	$\frac{1}{4}$ x $1\frac{1}{4}$	1.206	$\frac{3}{4}$ x $1\frac{1}{2}$	1.447	$\frac{3}{8}$ x $1\frac{3}{4}$	1.688	$\frac{3}{8}$ x 2	1.929
$\frac{1}{2}$ x 1	1.205	$\frac{5}{16}$ x $1\frac{1}{4}$	1.507	$\frac{1}{2}$ x $1\frac{1}{2}$	1.809	$\frac{1}{2}$ x $1\frac{3}{4}$	2.205	$\frac{1}{2}$ x 2	2.410
$\frac{5}{8}$ x 1	1.447	$\frac{3}{8}$ x $1\frac{1}{4}$	1.809	$\frac{5}{8}$ x $1\frac{1}{2}$	2.170	$\frac{5}{8}$ x $1\frac{3}{4}$	2.532	$\frac{5}{8}$ x 2	2.894
$\frac{1}{2}$ x 1	1.929	$\frac{1}{2}$ x $1\frac{1}{4}$	2.412	$\frac{1}{2}$ x $1\frac{1}{2}$	2.894	$\frac{1}{2}$ x $1\frac{3}{4}$	3.376	$\frac{1}{2}$ x 2	3.851
$\frac{1}{8}$ x $2\frac{1}{2}$	1.206	$\frac{1}{8}$ x 3	1.477	$\frac{1}{8}$ x $3\frac{1}{2}$	1.687	$\frac{1}{8}$ x 4	1.928	$\frac{1}{8}$ x 6	1.447
$\frac{3}{16}$ x $2\frac{1}{2}$	1.809	$\frac{3}{16}$ x 3	2.170	$\frac{3}{16}$ x $3\frac{1}{2}$	2.530	$\frac{3}{16}$ x 4	2.894	$\frac{3}{16}$ x 6	2.160
$\frac{1}{4}$ x $2\frac{1}{2}$	2.412	$\frac{1}{4}$ x 3	2.894	$\frac{1}{4}$ x $3\frac{1}{2}$	3.374	$\frac{1}{4}$ x 4	3.856	$\frac{1}{4}$ x 6	2.894
$\frac{5}{16}$ x $2\frac{1}{2}$	3.015	$\frac{5}{16}$ x 3	3.692	$\frac{5}{16}$ x $3\frac{1}{2}$	3.615	$\frac{5}{16}$ x 4	4.820	$\frac{5}{16}$ x 6	4.340
$\frac{3}{8}$ x $2\frac{1}{2}$	3.617	$\frac{3}{8}$ x 3	4.344	$\frac{3}{8}$ x $3\frac{1}{2}$	5.064	$\frac{3}{8}$ x 4	5.788	$\frac{3}{8}$ x 6	5.760
$\frac{1}{2}$ x $2\frac{1}{2}$	4.823	$\frac{1}{2}$ x 3	5.788	$\frac{1}{2}$ x $3\frac{1}{2}$	6.752	$\frac{1}{2}$ x 4	7.717	$\frac{1}{2}$ x 6	7.235
.....	.....	.....	.....	.....	.....	.....	.....	$\frac{3}{4}$ x 6	8.680
.....	.....	.....	.....	.....	.....	.....	.....	$\frac{1}{2}$ x 6	11.575

Variations from above weights must be expected in practice.
Anaconda Commutator Copper and Special Shapes made to order.
See page 180 for extras over Base Price.



TOBIN* BRONZE RODS

List Extras

ORDINARY FINISH

Round, Hexagon, Square, Octagon and Special Shapes for
Studs, Bolts, Forgings, Etc.

Base Prices Quoted upon Application

Size	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	Inc. $\frac{1}{4}$ " to $\frac{3}{8}$ "	Inc. $\frac{3}{8}$ " to $\frac{5}{8}$ "	Inc. $\frac{5}{8}$ " to 3 "	Over 3 "
Extras								
Round	20¢	15¢	11¢	8¢	4½¢	1½¢	Base	
Hexagon	Smaller than $\frac{3}{8}$ " Special Prices Quoted upon Application.					3¢	1½¢	For Piston Rods and Shafting, see Piston Rod schedule below.
Square						3¢	1½¢	
Rectangular Rods—add 3¢ per pound over corresponding size of Round Rods. Price governed by thinner dimensions of bar. Octagon and Special Shapes—Quoted upon Application.								

CUTTING EXTRAS—RODS OVER $\frac{1}{4}$ " DIAMETER

	Inc. 1" To 2"	2" 4"	4" 6"	6" 9"	9" 12"	1 Ft. 2 Ft.	2 Ft. 12 Ft.
Length							
Extras	9¢	6¢	4½¢	3¢	2¢	1½¢	1¢

Rods smaller than $\frac{1}{4}$ " cut to uniform specific lengths—add double above extras.
Extra charges for items of less than 200 lbs., see page 99.

TOBIN* BRONZE RODS

Turned and Straightened for Pump Piston Rods, Motor Boat
and Yacht Shafting

Base Prices upon Application

Extras over Base Price

Cut to Length	Inc. $\frac{5}{8}$ " to 1"	Inc. 1" to 2½"	Inc. 2½" to 5"	Cut to Length	Inc. $\frac{5}{8}$ " to 1"	Inc. 1" to 2½"	Inc. 2½" to 5"
Over 12"				Over 180"			
Not over 120"	10¢	6¢	4½¢	Not over 216"	16¢	12¢	11¢
Over 120"				Over 216"			
Not over 180"	12¢	8¢	7¢	Not over 20 Feet	22¢	18¢	17¢

Piston Rods less than $\frac{5}{8}$ " diameter and all Rods 12" and shorter or over 20 feet,
prices quoted upon application.

Extra charges for items of less than 200 lbs., see page 99.

TOBIN* BRONZE WELDING RODS

also

Yellow (Muntz) Metal, Naval Bronze, Manganese Bronze, Phosphor Bronze,
Welding Rods—Prompt Shipment. Prices Quoted upon Application.

For sizes and instructions for use, see pages 185 to 189.

*Trade Mark Reg. U. S. Patent Office



TOBIN* BRONZE
ANACONDA YELLOW (MUNTZ) METAL
ANACONDA NAVAL BRASS RODS

STANDARD SIZES Ready to Ship from Our Warehouse Stocks
Random Mill Lengths 10-12 Feet

Diameter of Rods Inches	Decimal Equivalent in Inches	Weights per Linear Foot Indicates Sizes Carried in Stock				
		Tobin Bronze*		Naval Brass		Yellow Metal
		Round	Hexagon	Round	Hexagon	Round
1/8	.125	.045	....	.045	....	....
5/16	.156	.073	....	.073	....	....
3/8	.187	.101	.111	.101	.111	....
7/16	.218	.140	....	....	....	....
1/2	.250	.178	.197	.178	.197	.178
5/8	.281	.231	....	....	....	....
3/4	.312	.279	.308	.279	.308	.279
7/8	.343	.344	....	....	....	....
1	.375	.402	.444	.402	.444	.402
1 1/8	.437	.547	.604	.547	.604	.547
1 1/4	.500	.715	.789	.715	.789	.715
1 1/2	.562	.905	.998	.905	.998	.905
1 3/4	.625	1.118	1.233	1.118	1.232	1.118
2	.687	1.353	1.491	1.353	1.491	....
2 1/8	.750	1.610	1.775	1.610	1.775	1.610
2 1/4	.812	1.889	2.083	1.889	2.083	....
2 1/2	.875	2.191	2.416	2.191	2.416	2.191
2 3/4	.937	2.515	2.773	2.515	2.773	....
3	1.000	2.862	3.155	2.862	3.155	2.862
3 1/8	1.062	3.230	3.562	3.230	3.562	3.230
3 1/4	1.125	3.622	3.993	3.622	3.993	3.622
3 1/2	1.187	4.035	4.449	4.035	4.449	....
3 3/4	1.250	4.471	4.930	4.471	4.930	4.471
4	1.312	4.929	5.435	4.929	5.435	....
4 1/8	1.375	5.410	5.965	5.410	5.965	5.410
4 1/4	1.437	5.913	6.520	5.913	6.520	....
4 1/2	1.500	6.438	7.100	6.438	7.100	6.438
4 3/4	1.625	7.556	8.332	7.556	8.332	7.556
5	1.750	8.763	9.663	8.763	9.663	8.763
5 1/8	1.875	10.060	11.090	10.060	11.090	10.060
5 1/4	2.000	11.450	12.620	11.450	12.620	11.450
5 1/2	2.125	12.920	14.250	12.920	14.250	12.920
5 3/4	2.250	14.490	15.970	14.490	15.970	14.490
6	2.375	16.140	17.800	16.140	17.800	16.140
6 1/8	2.500	17.880	19.720	17.880	19.720	17.880
6 1/4	2.750	21.640	....	21.640	....	21.640
6 1/2	3.000	25.750	....	25.750	....	25.750
6 3/4	3.250	30.220	....	30.220	....	30.220
7	3.500	35.050	....	35.050	....	35.050
7 1/8	3.750	40.240	....	40.240	....	40.240
7 1/4	4.000	45.780	....	45.780	....	45.780
7 1/2	4.250	....	....	51.690	....	....
7 3/4	4.500	....	....	57.750	....	....
8	4.750	....	....	64.560	....	....
8 1/4	5.000	....	....	71.540	....	....
8 1/2	6.000	....	....	103.000	....	....

Sizes not listed made to order promptly.

Sizes over 4" in diameter can only be supplied in limited lengths.

Variations from above weights must be expected in practice.

See page 182 for extras over Base Price.

*Trade Mark Reg. U. S. Patent Office



TOBIN* BRONZE ROD

Tobin Bronze combines great tensile strength, high yield point, toughness, hardness, homogeneity and non-liability to give off sparks with unusual resistance to corrosion. These remarkable physical properties are responsible for its adaptability to a great variety of engineering uses where strong, reliable material is required. Because Tobin Bronze offers exceptional resistance to salt water, it is pre-eminently suitable for marine construction.

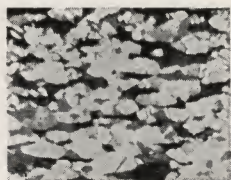
Tobin Bronze can be stamped or forged at a cherry red heat as readily as steel. It can be bent cold through 120 degrees to a radius equal to its diameter or thickness without fracture, and can also be used as a filler rod for welding cast iron, malleable iron, steel, bronze and copper by the oxyacetylene process.

Every piece of Tobin Bronze is stamped with the registered trade-mark TOBIN BRONZE—a permanent identification and an assurance of dependable and uniform quality.

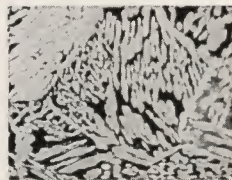
SO-CALLED EQUIVALENTS INFERIOR TO TOBIN BRONZE

Various bronzes are made of approximately the same alloy as Tobin Bronze, but while their outer appearances are quite similar, Tobin Bronze is distinctly superior in physical properties, as indicated by the following micrographs:

Magnified 75 Diameters



1—Typical Structure
of Tobin Bronze



2—Typical Structure
So-called Equivalent

Tobin Bronze Rods are thoroughly worked from the core to the outer surface, and have a fine, even-grain structure, which means uniform hardness and complete distribution of internal strains. Such rods are more dependable in every way, and are not liable to season-crack or fail under strain, as are so-called Tobin Bronze equivalents, which are wrought by other processes and have a grain structure like that of micrograph No. 2.

These advantages are fully appreciated by Marine and Hydraulic Engineers, who have tested Tobin Bronze, in comparison with other alloys, in actual engineering installations.

Tobin Bronze, in standard shapes, can be supplied promptly from stock. Special shapes will be made up as required.

When ordering special shapes, please mention the purpose for which the metal is intended, the temper desired and the strain it must withstand.

This information is essential for the guidance of the Mill in the manufacture and treatment of the metal so that it will give the best results in service.

*Registered U. S. Patent Office



PHYSICAL PROPERTIES OF TOBIN BRONZE RODS AND BARS

Made to meet all test requirements of the United States Government

Ultimate Tensile Strength

Rods not larger than $\frac{1}{2}$ inch diameter
60,000 lbs. per square inch
Larger than $\frac{1}{2}$ inch to 1 inch diameter, inclusive
58,000 lbs. per square inch.
Larger than 1 inch to 7 inches diameter, inclusive
54,000 lbs. per square inch.

Elongation

Rods not larger than $\frac{1}{2}$ inch diameter
35 per cent. in 2 inches
Rods larger than $\frac{1}{2}$ inch diameter
40 per cent. in 2 inches.

Minimum Yield Point

Rods not larger than $\frac{1}{2}$ inch diameter
27,000 lbs. per square inch.
Larger than $\frac{1}{2}$ inch to 1 inch diameter, inclusive
26,000 lbs. per square inch.
Larger than 1 inch to 7 inches diameter
25,000 lbs. per square inch.

Physical properties of Tobin Bronze Sheets,
Seamless Tubes, Pressed Metal Parts, and Castings
furnished on application.

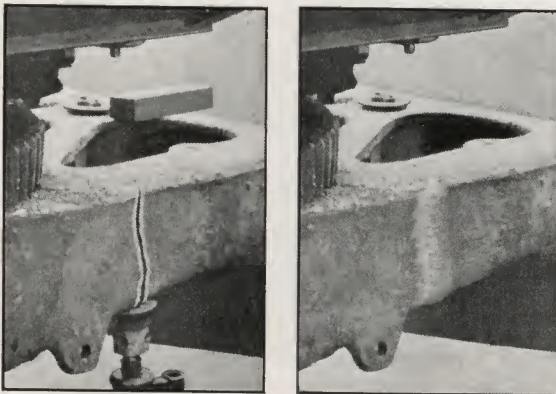
COPPER ALLOY WELDING RODS

A Scientifically Developed Product

In its present highly developed state, welding is indispensable in many industries for manufacturing operations. Furthermore, welding apparatus has become standard equipment for repairs and construction work in many oil refineries, steel mills, locomotive and machine repair shops, garages and metal working establishments. It has been proven beyond a doubt that broken or cracked machine parts and castings need not be discarded, but may be repaired so as to be practically as good as new and at a considerable saving in time and money.

Low temperature welding, a more recent development made possible by the use of bronze filler rods, has many advantages. By this process satisfactory welds are being made by heating the surface only of the weld areas to a red instead of completely melting the edges to be joined. This results not only in an important saving of time, but also precludes injury to the welded parts.

A growing demand has, therefore, been created for Welding Rods which flow freely at relatively low temperatures and can be depended upon to make strong, tough and otherwise satisfactory bonds.



Tobin Bronze Welding Rods made possible the welding of this cast-iron steam shovel frame in three hours without dismantling or pre-heating.

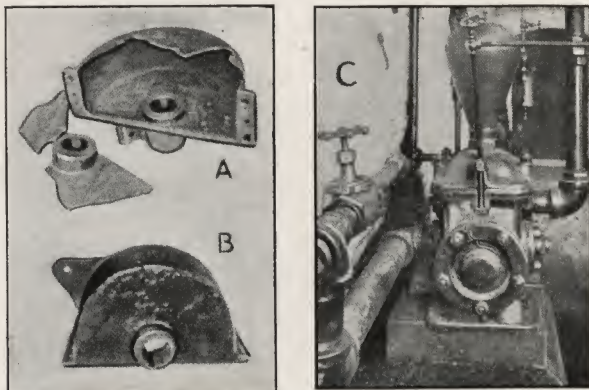


Our Mill, realizing the importance of this constructive work, has developed, through study and research, a complete line of Anaconda Copper Alloy Welding Rods and is prepared to recommend the alloy best adapted for different classes of work.

To obtain the most satisfactory results Copper Alloy Welding Rods should have a melting point somewhat below that of the metal to be welded. Successful welding, therefore, requires some knowledge of the melting point of the filler rod as well as the melting point of the material to be welded, also the tensile strength of the weld as compared with the strength of the parts welded.

The extent of the heat treatment and the manner in which the weld is made have a decided effect upon the final strength of the bond. And while the tensile strength of the welding material is somewhat reduced after melting and depositing, with workmanship and other conditions equal, the use of material having the highest tensile strength and the best elongation in the annealed state, before welding, will result in the strongest bond.

Filler rods of uniform composition and strength are essential to the production of satisfactory welds. Both these factors have been carefully studied and are rigidly controlled throughout the manufacture of Anaconda Welding Rods, which are uniformly homogeneous, clean, dense and free from impurities, dirt spills and other defects.



Figures A and B show a cast-iron gear case broken in three parts before and after being Tobin Bronze welded. Figure C shows a broken pump casing which was repaired without dismantling by Tobin Bronze welding.

TOBIN* BRONZE

Reg. U. S. Pat. Off.

Tobin Bronze, an exclusive product of The American Brass Company, is the most satisfactory material for general oxyacetylene welding because of its combined high tensile strength, ductility and uniform composition. It fuses readily and flows freely at low welding temperatures. It is easy to machine or finish.

Tobin Bronze welds are from two or three times stronger than cast-iron welds and are being used with remarkable results by experienced welders to unite steel as well as cast-iron parts.

Instructions for Anaconda Welding Rods will be found on page 187.



Tobin Bronze welds can be made in one-half to one-third the time required when welding with steel or iron rods. When using Tobin Bronze filler rods, the surfaces only of the weld areas should be heated to a dull red. This mild heat does not expand the base materials sufficiently to cause warping or cracking.

Special preheating is generally found to be unnecessary and many repairs can be welded in place without the expense of dismantling and reassembling.

Tobin Bronze is used for welding locomotive cylinders and other parts, automobile engine blocks, cast-iron pipes and for the general repairing of cast-iron, malleable iron, steel and copper parts.

SUGGESTIONS FOR WELDING WITH TOBIN BRONZE

PREPARATION—Thoroughly Clean the weld areas. Remove scale, rust and grease for at least one inch back from the edges to be welded.

Preparation of weld areas should be finished by chipping, not grinding. Better adhesion of the Bronze is thus effected.

To weld a cracked, thin section of Cast Iron, chip along the crack with a round-nose chisel a groove one-half to two-thirds the thickness of the metal and bevel the corners. On long cracks make an occasional cross groove 1" to 2" long.

To weld heavier Cast Iron sections, chamfer the edges to be welded two-thirds to three-quarters the thickness of the metal, leaving one-third to one-quarter of the thickness abutting.

To weld Steel, chamfer or "V" out the break to the full thickness of the metal, and wide enough to permit welding at the bottom of the "V."

FLUX—Use a good Prepared Brazing Flux.

WELDING—Use a neutral flame. Warm one end of the filler rod and dip in flux. Heat a small section of the weld area to a dull red and without allowing the inner cone of the flame to touch the Tobin Bronze, proceed to melt the Bronze on the heated surfaces, with quick intermittent applications of the flame.

With clean surfaces and at correct heat, the weld areas can be coated with Tobin Bronze rapidly and evenly. After the first "tinning" application, the joint may be built up to the desired thickness, using flux as needed.

When repairing a long break or crack in Cast Iron with Tobin Bronze, weld a few inches at each end and then in the center, filling in between until the joint is finished. When a crack extends from the edge partially across a casting, begin welding at the inner end and work outward.

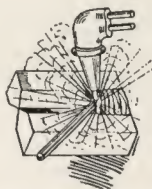
CAUTION—Beware of overheating!

The operator must not permit the weld areas to get beyond a dull red heat nor "burn" the Bronze filler rod or weld metal by directly applying the intense heat of the inner cone of the flame. Never "re-melt" Bronze which has been deposited in a weld without adding more Bronze.

After "tinning" the weld area with Bronze use a good Brazing Flux for completing the weld.

When using Tobin Bronze for the first time, weld test pieces until a joint is obtained which will not break when hammered in a vise.

REMEMBER—That welding Iron or Steel with Tobin Bronze Rods is accomplished by a different method than that used when welding with Iron or Steel Rods.



Avoid this practice when using Tobin Bronze Rods. This is the standard method of welding with Iron or Steel Rods. The inner cone of the flame is played alternately on the weld metal just deposited and the weld areas, maintaining both in a molten condition. The Welding Rod is Fuddle Melted. The procedure outlined above will not give satisfactory results when welding with Tobin Bronze. You should follow the practice shown next.



Fig. 1



Fig. 2

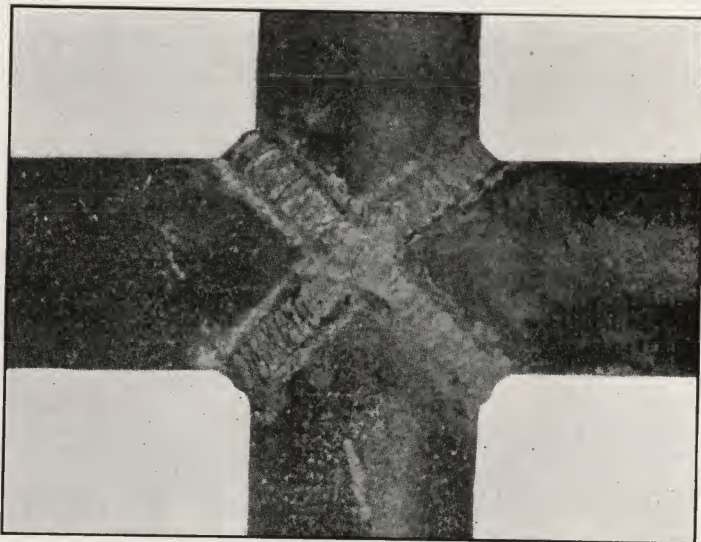
Follow this practice when welding with Tobin Bronze Rods. Recommended practice for welding with Tobin Bronze Rods. Using a neutral flame, apply the inner cone directly to the weld areas, heating a small portion thereof to a dull red only. (See Fig. 1.) Then lift the torch to permit the fluxed end of the Bronze Rod to be advanced and melted by the Outer Envelope of the flame. (See Fig. 2.)

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MELTING POINTS OF WELDING RODS

Material	Approximate Melting Point—Degrees		Approximate Tensile Strength—Lbs. Per Square Inch Annealed Rods
	C.	F.	
Tobin Bronze.....	885	1625	54,000
Manganese Bronze.....	870	1598	60,000
Phosphor Bronze.....	1050	1922	45,000
Brazing Metal.....	890	1634	50,000
Deoxidized Copper.....	1083	1981	31,000
Commercial Electrolytic Copper	1083	1981	30,000
Ambrac.....	1150	2102	50,000
Everdur.....	1019	1866	65,000
A. B. Naval.....	885	1625	54,000



Tobin Bronze Welding of cast-iron pipe is an established engineering practice and offers many distinct advantages in the waterworks field



ANACONDA SILICON COPPER

The addition of a suitable deoxidizing agent to high purity Anaconda Copper eliminates the oxygen content of the rod and minimizes subsequent oxidation during welding. Silicon Copper welds are denser and consequently stronger than commercial copper welds.

Silicon Copper is used in the fabrication of metal furniture and similar sheet metal construction. It can be applied without a flux, which is an important consideration where the metal is subsequently coated with enamel.

In arc welding Silicon Copper serves as an efficient electrode for repairing copper castings such as blast furnace tuyeres, etc.

ANACONDA PHOSPHOR BRONZE

Similar in color to pure copper this alloy is employed in making welds where a tougher and stronger bond is required than can be obtained by using Silicon Copper.

Phosphor Bronze is now being extensively used for electrically welding bronze castings and galvanized iron. It can be applied rapidly and when carefully controlled the operation of welding does not injure adjacent galvanized coatings.

ANACONDA ELECTROLYTIC COPPER

Recommended for welding commercially pure copper. If the welding is followed by hammering and annealing, a joint approximating the strength of the base material is obtained.

ANACONDA MANGANESE BRONZE

Anaconda Manganese Bronze melts at a comparatively low temperature and produces an unusually stiff and strong bond. Care should be used in its application, since its increased strength is not accompanied with the same ductility as is found in Tobin Bronze.

ANACONDA BRAZING RODS

For repairing brass castings, also for brazing iron or steel where the highest strength or the most durable mechanical wear is not a determining factor. The resulting braze, while suitable for many purposes, is inferior in its strength properties to Tobin Bronze or Manganese Bronze welds.

EVERDUR METAL

Everdur Metal is an alloy composed of Copper, Silicon and Manganese and has a tensile strength and elastic limit equal to low and medium carbon steels. It is immune to rust and has high resistance to corroding gases, vapors and liquids.

Everdur Rods are applicable to both oxyacetylene and electric welding. In electric welding a short arc with the current flowing from the electrode to the work gives the best results.

Everdur electrodes may be used either for hand or automatic arc welding.

Everdur has about the same electrical conductivity as steel and the same voltage may be used as when welding with steel rods.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA EXTRUDED METAL
BRASS DOOR SADDLES—BRASS SILL MOULDINGS—SPECIAL,
IRREGULAR SHAPED BARS—HEAVY ANGLES—
CHANNELS—TEES AND ARCHITECTURAL MOULDINGS

EXTRUSION PROCESS

To extrude is to force, press or push out. The term as applied to metals means the process of forcing semi-plastic material through dies, by the use of hydraulic power at high pressure. In this way, rods or bars of odd and irregular forms, constant in cross sections, are produced.

RANGE OF ALLOYS AND CROSS SECTIONS

Various **Brass** and **Bronze** alloys of a "Forgeable" or "Hot-working" character are manufactured by this process into rods of special cross section having a minimum area equal to that of a quarter inch circle and maximum sizes having measurements several inches across the extreme of width and length. Special shaped bars of **Copper** can also be extruded in sizable, compact sections, where the poundage is sufficient to warrant the necessary equipment.

Long lengths are produced, but the length is governed by the size of the cross section and the weight of the billet used. (The minimum net weight per billet being 100 pounds, the product of the extrusion process is limited accordingly, and orders cannot be accepted for a smaller quantity.) The weights per foot vary from a fraction of a pound for a small section, to several pounds per foot for bars of large cross section.

Send Blue-print or Sketch of Patterns required. Prices Quoted upon Application.

See page 191 for illustrations of some of the full-sized sections for which mill has dies.



ANACONDA EXTRUDED METALS

IN

BRASS—BRONZE—COPPER

MOULDINGS—ANGLES—CHANNELS AND SPECIAL SHAPES



SOME EXTRUDED METAL SECTIONS, FULL SIZE

Prices Quoted upon Application

Send Blue-print or Sketch of Patterns Required

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



MEMORANDA

BASE PRICES

ANACONDA WIRE PRODUCTS

	Date	Date	Date	Date	Date	Date	Date	Date	Date
MATERIAL									
Yellow (High) Brass									
Best Spring Brass									
Red (Low) Brass (80%)									
Commercial Bronze (90%)									
Copper									
5% Nickel Silver									
10% Nickel Silver									
15% Nickel Silver									
18% Nickel Silver									
Phosphor Bronze									
Grade "A" 5%									
Grade "C" 8%									
Grade "D" 10%									

ANACONDA WIRE PRODUCTS

**ROUND
SQUARE**

**FLAT
SPECIAL**

in

YELLOW (HIGH) BRASS

RED (LOW) BRASS (80%)

COMMERCIAL BRONZE (90%)

COPPER

NICKEL (GERMAN) SILVER

PHOSPHOR BRONZE

SPECIAL MIXTURES

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA BRASS, COMMERCIAL BRONZE AND GILDING WIRE IN COILS

Brown & Sharpe's Gauge the Standard
Base Prices Quoted upon Application

Extras Over Base Prices, Cents per Pound

Size		Round	Hex. Oct. and Square	Flat and Half Rd.	Size		Round	Hex. Oct. and Square	Flat and Half Rd.
Gauge	Inches				Gauge	Inches			
8	.1285 & lar.	Base	2	4	23	.0226	6	10	10
9	.1144	1	3	5	24	.0201	6 1/2	10 1/2	10 1/2
10	.1019	1	3	5	25	.0179	8 1/2		
11	.0907	1	3	5	26	.0159	9		
12	.0808	2	5	6	27	.0142	9 1/2		
13	.0720	2	5	6	28	.0126	10 1/4		
14	.0641	2	5	6	29	.0113	11 1/4		
15	.0571	3	6	7	30	.0100	12 3/4		
16	.0508	3	6	7	31	.0089	13 1/4		
17	.0453	3 1/2	7 1/2	7 1/2	32	.0080	15		
18	.0403	3 1/2	7 1/2	7 1/2	33	.0071	17		
19	.0359	4 1/2	8 1/2	8 1/2	34	.0063	19		
20	.0320	4 1/2	8 1/2	8 1/2	35	.0056	23 1/2		
21	.0285	5 1/2	9 1/2	9 1/2	36	.0050	27 1/4		
22	.0254	5 1/2	9 1/2	9 1/2	37	.0045	31		

Special Shaped Wire other than listed above, prices quoted upon application.

Wire between gauges takes price of nearest gauge.

Whitened or Tinned Wire, prices quoted upon application.

Price of Flat Wire is governed by the thinner dimension.

Flat Wire is material drawn through dies 3/8 in. wide and narrower, .090 in. and thinner.

Extras for Cutting Wire to Either Random or Specific Lengths

Round Wire smaller than No. 11 to No. 15 inclusive, straightened and cut to length 2 ft. and over, 12c advance: under 2 ft. or smaller than No. 15, prices quoted upon application.

No. 11 and larger, straightened and cut to length, consult Rod List, see page 58.

Flat Wire, over 1/4 in. to 3/8 in. wide inclusive, straightened and cut to length, extras as per schedule for cutting Sheet Metal, over 1/4 in. to 1/2 in. wide, to exact lengths.

Straightening and cutting to length, Wire other than noted above, prices quoted upon application.

Extras for Spooling Wire, Cents per Pound

Weight on Spools	1 lb.	2 lbs.	3 lbs.	4 lbs.	5 lbs.	10 lbs.	15 lbs.	20 lbs.	25 lbs.
Spooling Advance	12	11	10	9	6	4	2	2	2

Spools are subject to a special charge which will be rebated upon return in good condition, freight prepaid.

Wire furnished in coils of specific weights, same advances as for spooling corresponding weights.

For lists of Standard Sizes, see page 195.

Extra charges for items of less than 200 lbs., see page 99.



ANACONDA HIGH BRASS WIRE

In Soft—Half Hard—Spring

STOCK SIZES

Ready for Immediate Shipment from Our Warehouse Stocks

Brown & Sharpe's Gauge

No. 6-11 Gauge in coils about 35 pounds

No. 12-18 Gauge in coils about 18 pounds

No. 19-27 Gauge in coils about 6 pounds

SOFT			HALF HARD			SPRING		
Diameter in Brown & Sharpe Gauge	Decimal Part of Inch	Weight per Linear Foot	Diameter in Brown & Sharpe Gauge	Decimal Part of Inch	Weight per Linear Foot	Diameter in Brown & Sharpe Gauge	Decimal Part of Inch	Weight per Linear Foot
2	.257	.1912	6	.162	.0756	3	.229	.1516
4	.204	.1203	7	.144	.0600	4	.204	.1203
6	.162	.0756	8	.128	.0475	5	.181	.0953
7	.144	.0600	9	.114	.0377	6	.162	.0756
8	.128	.0475	10	.102	.0300	7	.144	.0600
9	.114	.0377	11	.090	.0237	8	.128	.0475
10	.102	.0300	12	.081	.0188	9	.114	.0377
11	.090	.0237	13	.072	.0149	10	.102	.0300
12	.081	.0188	14	.064	.0118	11	.090	.0237
13	.072	.0149	15	.057	.0093	12	.081	.0188
14	.064	.0118	16	.050	.0074	13	.072	.0149
15	.057	.0093	17	.045	.0059	14	.064	.0118
16	.050	.0074	18	.040	.0046	15	.057	.0093
17	.045	.0057	19	.035	.0037	16	.050	.0074
18	.040	.0046	20	.031	.0029	17	.045	.0059
19	.035	.0037	21	.028	.0023	18	.040	.0046
20	.031	.0029	22	.025	.0018	19	.035	.0037
21	.028	.0023	23	.023	.0014	20	.031	.0029
22	.025	.0018	24	.020	.0011	21	.028	.0023
23	.023	.0014	25	.018	.0009	22	.025	.0018
24	.020	.0011	26	.016	.0007	23	.023	.0014
25	.018	.0009	27	.014	.0005	24	.020	.0011
26	.016	.0007				25	.018	.0009
27	.014	.0005				26	.016	.0007
						27	.014	.0005

Base price on application.

For other kinds of wire see following pages.

Variation from above weights must be expected in practice.

See page 194 for extras over Base Price.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



ANACONDA SOFT BARE COPPER WIRE

STOCK SIZES

Ready for Immediate Shipment from Our Warehouse Stocks

(Brown & Sharpe Gauge)

$\frac{3}{8}$ " to $\frac{1}{8}$ " in coils about 25 to 50 pounds

No. 10 to 19 in coils about 15 to 20 pounds

No. 20 to 27 in coils about 5 to 7 pounds

Diameter in Brown and Sharpe Gauge Inch	Thickness in Decimal Parts of an Inch	Weight per Lineal Foot	Memoranda
$\frac{3}{8}$	.375	.428	
$\frac{5}{16}$	.312	.297	
$\frac{1}{4}$	.250	.190	
$\frac{3}{16}$	.187	.108	
6	.162	.076	
7	.144	.061	
8	.128	.048	
9	.114	.038	
10	.102	.031	
11	.090	.024	
12	.081	.020	
13	.072	.016	
14	.064	.013	
15	.057	.011	
16	.050	.0085	
17	.045	.0070	
18	.040	.0055	
19	.035	.0047	
20	.031	.0035	
21	.028	.0030	
22	.025	.0025	
23	.023	.0020	
24	.020	.0015	
25	.018	.0010	
26	.012	.0009	
27	.014	.0007	
28	.012	.0006	

Variations from above weights must be expected in practice.

Prices Quoted upon Application.



ANACONDA NICKEL (GERMAN) SILVER WIRE

and

PHOSPHOR BRONZE WIRE

In Coils About 5 to 10 Pounds

Prompt Shipment

18% Grade Nickel (German) Silver Spring Temper			95—5% Grade Phosphor Bronze Spring Temper		
Brown & Sharpe Gauge	Decimal Part of an Inch	Weight per Lineal Foot	Brown & Sharpe Gauge	Decimal Part of an Inch	Weight per Lineal Foot
6	.162	.075	4	.204	.122
8	.128	.047	6	.162	.076
10	.102	.029	8	.128	.048
12	.081	.018	10	.102	.030
14	.064	.011	12	.081	.019
16	.050	.007	14	.064	.012
18	.040	.004	16	.050	.008
20	.031	.003	18	.040	.005
22	.025	.002	20	.031	.0035
24	.020	.001	22	.025	.002
26	.016	.0007	24	.020	.0085
28	.012	.0004	26	.016	.001
30	.010	.0003	28	.012	.0005
			30	.010	.0004

Variations from above weights must be expected in practice.

WIRE FOR SPECIAL REQUIREMENTS

Extra quality Spring Wire with high elastic limit made of Coe Bronze, Phosphor Bronze and Gun Metal Alloys.

Wire for weaving into Cloth; Fourdrinier, Phosphor Bronze, Low Brass and Commercial Bronze.

Fancy and Special Shaped Wire in a large variety of sizes and designs.

Prices quoted upon application.

ACCESSORIES

BRASS COPPER BRONZE

RIVETS

BURS

SCREWS

BOLTS

NUTS

WASHERS

NAILS

PINS

SCREEN

TACKS

STAPLES

ROPE

CORD

CLOTH

SOLDER

BALLS

HINGES

CHECKS

CHAINS

FERRULES

GASKETS

BUSHINGS



BRASS MACHINE BOLTS

Hexagon Head and Hexagon Nuts

U. S. Standard Thread

Immediate Shipment from Our Warehouse Stocks*



Hex. Head and Hex. Nut



Square Head—Square Nut

List Price per 100 pieces

Length of Bolt Inches	Diameter							
	¼ Inch	⅜ Inch	½ Inch	⅝ Inch	¾ Inch	⅞ Inch	1 Inch	
1	\$12.50	\$14.50	\$16.25					
1¼	12.50	14.50	16.25					
1½	12.50	14.50	16.25		\$21.90	\$31.50		
1¾	12.75	14.90	17.05		22.50	32.90		
2	13.00	15.30	17.45	\$20.50	23.10	33.80	\$49.00	\$75.00 \$109.00
2¼	13.25	15.70	17.85	21.00	23.70	34.80	.....	.....
2½	13.50	16.10	18.25	21.50	24.30	35.80	51.85	79.00 114.10
2¾	13.75	16.50	18.65	22.00	24.90	36.80	.....	.....
3	14.00	16.90	19.05	22.50	25.50	37.80	54.70	83.00 119.20
3¼	14.25	17.30	19.45	23.00	26.10	38.80	.....	.....
3½	14.50	17.70	19.85	23.50	26.70	39.80	57.55	87.00 124.30
3¾	14.75	18.10	20.25	24.00	27.30	40.80	.....	.....
4	15.00	18.50	20.65	24.50	27.90	41.80	60.40	91.00 130.00
4½	15.50	19.30	21.45	25.50	29.10	43.80	63.25	95.00 136.00
5	16.00	20.10	22.25	26.50	30.30	45.80	66.10	99.00 142.00
5½	16.50	20.90	23.05	27.50	31.50	47.80	68.95	103.00 148.00
6	17.00	21.70	23.85	28.50	32.70	49.80	71.80	107.00 154.00
7	18.00	23.30	25.45	30.50	35.10	53.80	77.50	115.00 166.00
8	19.00	24.90	27.05	32.50	37.50	57.80	83.20	123.00 178.00
9	20.00	26.50	28.65	34.50	39.90	61.80	88.90	131.00 190.00
10	21.00	28.10	30.25	36.50	42.30	65.80	94.60	139.00 202.00
11	22.00	29.70	31.85	38.50	44.70	69.80	100.30	147.00 214.00
12	23.00	31.30	33.45	40.50	47.10	73.80	106.00	155.00 226.00

Sizes not listed made to order, if quantity warrants special manufacture.

*Sizes below heavy line not stocked but can be shipped promptly.

Same List applies to Square Head with Square Nuts, which can be shipped promptly.
Intermediate Sizes take next Higher List.

Discounts upon Application, varying with Styles and Quantities Ordered.

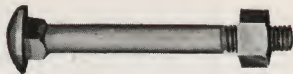
For Monel Metal Machine Bolts, see page 68.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



BRASS CARRIAGE AND LOOM BOLTS

With Square or Hexagon Nuts



Carriage Bolt

U. S. Standard Thread

Immediate Shipment from Our Warehouse Stocks*

List Price per 100 pieces

Length under Head Inches	Diameter					
	$\frac{1}{4}$ Inch	$\frac{5}{16}$ Inch	$\frac{3}{8}$ Inch	$\frac{7}{16}$ Inch	$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch
1½	\$12.00	\$14.50	\$16.00	\$20.00		
2	12.50	15.30	16.80	21.00	\$23.00	
2½	13.00	16.10	17.60	22.00	24.30	\$42.50
3	13.50	16.90	18.40	23.00	25.60	44.50
3½	14.00	17.20	19.20	24.00	26.90	46.50
4	14.50	18.00	20.00	25.00	28.20	48.50
4½	15.00	18.80	21.80	26.00	29.50	50.50
5	15.50	19.60	22.60	27.00	30.80	52.50
5½	16.00	20.40	23.40	28.00	32.10	54.50
6	16.50	21.20	24.20	29.00	33.40	56.50
7	18.00	23.20	26.20	31.50	36.40	61.50
8	19.50	25.20	28.20	34.00	39.40	66.50
9	21.00	27.20	30.20	36.50	42.40	71.50
10	22.50	29.20	32.20	39.00	45.40	76.50

Sizes other than listed made to order, if quantity warrants special manufacture.

*Sizes below heavy line not stocked but can be shipped promptly.

The above bolts are so manufactured they can be adopted for use in the construction of Laundry Equipment and Looms, where large oversize heads, sharp corners and square necks are required. Intermediate sizes take next higher list.

Hexagon Nuts will be supplied unless otherwise specified.

Discounts upon Application.

For Monel Metal Carriage Bolts, see page 68.



BRASS STUD BOLTS ONLY



Stud Bolt with Hex. Nut



Stud Bolt without Nut

U. S. Standard Threads

List Price per 100 Pieces

For Nuts, see page 202

Length over all Inches	Diameter						
	$\frac{3}{8}$ Inch	$\frac{7}{16}$ Inch	$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch	$\frac{3}{4}$ Inch	$\frac{7}{8}$ Inch	1 Inch
1 $\frac{1}{2}$	\$8.00	\$8.75	\$9.75	\$13.75			
2	8.80	9.75	11.25	16.25			
2 $\frac{1}{4}$	9.20	10.25	12.00	17.50			
2 $\frac{1}{2}$	9.60	10.75	12.75	18.75	\$29.10		
2 $\frac{3}{4}$	10.00	11.25	13.50	20.00	30.50		
3	10.40	11.75	14.25	21.25	31.90	\$35.00	\$42.50
3 $\frac{1}{4}$	10.80	12.25	15.00	22.50	33.30	37.00	45.00
3 $\frac{1}{2}$	11.20	12.75	15.75	23.75	34.70	39.00	47.50
3 $\frac{3}{4}$	11.60	13.25	16.50	25.00	36.50	41.00	50.00
4	12.00	13.75	17.25	26.25	37.50	43.00	52.50
4 $\frac{1}{2}$	13.00	15.00	19.00	29.00	40.50	48.00	57.50
5	14.00	16.25	20.75	31.75	43.50	53.00	62.50
5 $\frac{1}{2}$	15.00	17.50	22.50	34.50	46.50	58.00	67.50
6	16.00	18.75	24.25	37.25	49.50	63.00	72.50

Prompt Shipment of all the above, in any Length Thread required at one or both ends.
Special Sizes and Threads made to your Specifications.
Discounts upon Application.

HEXAGON HEAD BRASS TAP BOLTS BRASS STAY BOLTS

IN

Any size or other Non-Ferrous Alloys made to your order promptly
Above also made of Monel Metal and Pure Nickel. Prompt Shipment.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



HEXAGON BRASS NUTS TURNED OR CAST



Hex. Semi-Finished Nut

U. S. Standard Thread

Immediate Shipment from Our
Warehouse Stocks

List Price per 100 Pieces



Hex. Cast Nut

Bolt Diameter Inches	Threads per Inch	Width Inches	Thickness Inches	Approx. Number per Lb.	Price Milled from Bar	Price Rough Cast
$\frac{3}{16}$	24	$\frac{3}{8}$	$\frac{3}{16}$	190	\$1.60	.....
$\frac{1}{4}$	20	$\frac{1}{2}$	$\frac{1}{4}$	88	2.40	\$2.25
$\frac{5}{16}$	18	$\frac{11}{32}$	$\frac{5}{16}$	49	3.20	2.80
$\frac{3}{8}$	16	$\frac{11}{16}$	$\frac{3}{8}$	32	5.20	3.75
$\frac{7}{16}$	14	$\frac{25}{32}$	$\frac{7}{16}$	20	7.20	4.00
$\frac{1}{2}$	13	$\frac{7}{8}$	$\frac{1}{2}$	15	9.60	5.00
$\frac{9}{16}$	12	$\frac{31}{32}$	$\frac{9}{16}$	11	15.00	7.00
$\frac{5}{8}$	11	$1\frac{1}{16}$	$\frac{5}{8}$	8	17.00	8.75
$\frac{3}{4}$	10	$1\frac{1}{4}$	$\frac{3}{4}$	5	27.00	12.00
$\frac{7}{8}$	9	$1\frac{1}{8}$	$\frac{7}{8}$	$3\frac{1}{4}$	45.00	18.00
1	8	$1\frac{5}{8}$	1	$2\frac{1}{3}$	68.00	25.00
$1\frac{1}{8}$	7	$1\frac{13}{16}$	$1\frac{1}{8}$	$1\frac{5}{8}$	.....	37.50
$1\frac{1}{4}$	7	2	$1\frac{1}{4}$	$1\frac{1}{2}$	.....	50.00
$1\frac{3}{8}$	6	$2\frac{3}{16}$	$1\frac{3}{8}$	1	.....	65.00
$1\frac{1}{2}$	6	$2\frac{3}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	.....	75.00
$1\frac{5}{8}$	$5\frac{1}{2}$	$2\frac{9}{16}$	$1\frac{5}{8}$	$\frac{1}{2}$	.....	125.00
$1\frac{3}{4}$	5	$2\frac{3}{4}$	$1\frac{3}{4}$	$\frac{1}{2}$	.....	150.00
$1\frac{7}{8}$	5	$2\frac{11}{8}$	$1\frac{7}{8}$	$\frac{2}{5}$	.....	175.00
2	$4\frac{1}{2}$	$3\frac{1}{8}$	2	$\frac{1}{3}$	.....	250.00

For Machine Screw Nuts see page 207.

Monel Metal Nuts also carried in stock in Hexagon, Square, Jam and Wing Styles, see pages 70 and 71.

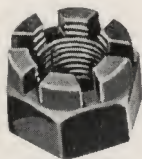
Brass Jam Nuts, Check Nuts, Acorn Nuts, Castellated Nuts and Wing Nuts in all standard dimensions can be shipped promptly. Also special sizes in Bronze or Brass and other mixtures made to order promptly.



Hex. Jam Nut



Cap Nut



Castellated Nut



Square Nut



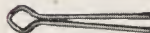
Wing Nut

Discounts Quoted upon Application.

Blank Nuts Furnished Promptly.



BRASS COTTER PINS



Immediate Shipment from Our Warehouse Stocks

List Price per 1000 Pieces

Diameter	$\frac{1}{16}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "
Length	\$	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{2}$ "	2.80	3.20	4.40	.....	.....	.....	.....	.....
$\frac{3}{4}$ "	3.60	4.24	6.00	9.60	13.60	.....	.....	.....
1"	4.40	5.20	7.20	11.60	16.40	27.20	42.40	.....
$1\frac{1}{4}$ "	5.20	6.44	8.80	13.60	19.20	32.00	49.60	.....
$1\frac{1}{2}$ "	6.00	7.20	10.00	15.60	22.00	36.80	56.80	84.00
$1\frac{3}{4}$ "	7.60	8.24	11.60	17.60	24.80	41.60	64.40	.....
2"	8.40	9.20	12.80	19.60	27.60	46.40	72.00	104.00
$2\frac{1}{4}$"	.....	.....	.....	21.60	32.60	51.20	79.20	.....
$2\frac{1}{2}$"	.....	12.40	16.00	23.60	35.60	56.00	84.40	124.00
3"	.....	.....	20.00	27.60	40.00	62.40	93.60	.....
$3\frac{1}{2}$"	.....	.....	.....	.....	46.00	68.80	111.20	144.00
4"	.....	.....	.....	.....	52.00	75.20	128.80	164.00

Sizes not Listed can be Made to Order very Promptly including Heavy Pins, $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " Diameter.

Discounts Quoted upon Application.

For Monel Metal Cotter Pins, see page 74.

Phosphor Bronze and other Alloys can be Made to your Order Promptly, if quantity warrants Special Mill Manufacture.

Pin measurement is from eye to point.

Assortments made up to order.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



BRASS AND COPPER WASHERS



For $\frac{3}{8}$ " Bolt



For $\frac{1}{2}$ " Bolt

Standard Sizes to Fit

BOLTS—SCREWS—RIVETS

Immediate Shipment from Our Warehouse Stocks

List Price per Pound

Diameter of Bolt or Screw Inch	Outside Diameter Inch	Inside Diameter Inch	Thickness Inch	Approx. Number per Lb.	List Price per Pound
No. 12	$\frac{23}{64}$	.124	.028	1240	\$2.00
10	$\frac{33}{32}$	.138	.036	750	1.50
9	$\frac{7}{16}$	.146	.040	570	1.25
8	$\frac{15}{32}$	.166	.045	465	1.00
7	$\frac{1}{2}$	.177	.050	355	1.00
6	$\frac{31}{32}$	.206	.057	185	.90
5	$\frac{13}{16}$	.223	.064	90	.80
$\frac{3}{16}$	$\frac{1}{2}$	.218	.040	480	.80
$\frac{1}{4}$	$\frac{5}{8}$	.281	.065	210	.75
$\frac{5}{16}$	$\frac{7}{8}$	.343	.065	105	.75
$\frac{3}{8}$	1	.406	.081	65	.70
$\frac{7}{16}$	$1\frac{3}{16}$	.500	.081	50	.70
$\frac{1}{2}$	$1\frac{1}{4}$	.562	.091	39	.70
$\frac{5}{8}$	$1\frac{1}{4}$	.687	.102	24	.70
$\frac{3}{4}$	2	.812	.102	12	.70
$\frac{7}{8}$	$2\frac{1}{4}$	.937	.128	10	.70
1	$2\frac{1}{2}$	1.064	.144	6	.70

Sizes No. 12 to $\frac{3}{8}$ " inclusive are packed in 1 pound boxes, over $\frac{3}{8}$ " to 1" inclusive in five pound boxes. Shipped in bulk if so desired. Above washers and other special dimensions made in any non-ferrous metals to your order if quantity warrants manufacture.

Washers of the above sizes are also stocked in Monel Metal; see page 72.

Discounts upon Application.



GENUINE PHOSPHOR BRONZE **KANTINK** LOCK WASHERS

Plain Type
Ready to Ship
from Our Warehouse Stocks



Size of Screw or Bolt	SECTION		Approx. Weight per 1000 Pcs.	List Price per 1000
	Width Inches	Thickness Inches		
No. 2	$\frac{1}{32}$	$\frac{1}{32}$	2 Ozs.	\$4.00
4	$\frac{1}{16}$	$\frac{1}{32}$	4 Ozs.	6.50
6	$\frac{3}{32}$	$\frac{1}{32}$	9 Ozs.	8.25
8	$\frac{3}{32}$	$\frac{1}{32}$	10 Ozs.	9.00
10	$\frac{3}{32}$	$\frac{3}{64}$	18 Ozs.	12.00
12	$\frac{3}{32}$	$\frac{1}{16}$	24 Ozs.	14.50
$\frac{1}{4}$ "	$\frac{1}{8}$	$\frac{1}{16}$	2 $\frac{1}{4}$ Lbs.	21.50
$\frac{5}{16}$ "	$\frac{1}{8}$	$\frac{1}{16}$	2 $\frac{3}{4}$ Lbs.	23.00
$\frac{3}{8}$ "	$\frac{1}{8}$	$\frac{3}{32}$	5 $\frac{1}{2}$ Lbs.	35.00
$\frac{7}{16}$ "	$\frac{5}{32}$	$\frac{1}{8}$	9 $\frac{3}{4}$ Lbs.	60.00
$\frac{1}{2}$ "	$\frac{11}{64}$	$\frac{1}{8}$	12 $\frac{1}{2}$ Lbs.	75.00
$\frac{5}{8}$ "	$\frac{1}{4}$	$\frac{1}{8}$	20 Lbs.	180.00
$\frac{3}{4}$ "	$\frac{1}{4}$	$\frac{1}{8}$	26 Lbs.	200.00

When ordering give all dimensions so as to enable prompt shipment.
Discounts Quoted upon Application.

PLATE WASHERS AND CAST WASHERS



Plate Washer



Cast Washer

In Brass, Bronze and other Non-Ferrous Metals made to all Standard Sizes and Special Dimensions, if Quantity Warrants.

Prices Quoted upon Application.

For Monel Metal Lock Washers, Plate Washers and Cast Washers, see pages 73 and 74.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC..



BRASS MACHINE SCREWS

COARSE THREADS

Immediate Shipment from Our
Warehouse Stocks

List Price per Gross



Flat Head



Round Head



Oval (French)
Head



Fillister
Head

Threads per Inch	56	48	40	40	32	32	24	24	20	18	16
Diameter	2	3	4	5	6	8	10	12	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
$\frac{1}{8}$	0.28	0.34	0.40	0.52	0.52						
$\frac{3}{16}$.....	.30	.36	.42	.54	.54	0.70	0.95				
$\frac{1}{4}$.....	.32	.38	.44	.58	.58	.76	1.05	1.60			
$\frac{5}{16}$.....	.34	.40	.46	.62	.62	.82	1.15	1.70	2.30		
$\frac{3}{8}$.....	.36	.42	.48	.66	.66	.88	1.25	1.80	2.40	4.60	
$\frac{7}{16}$.....	.38	.44	.50	.70	.70	.94	1.35	1.90	2.50	4.80	
$\frac{1}{2}$.....	.40	.46	.54	.76	.76	1.02	1.45	2.00	2.65	5.00	7.10
$\frac{5}{8}$.....	.44	.52	.62	.92	.92	1.20	1.75	2.20	2.95	5.40	7.70
$\frac{3}{4}$.....	.50	.58	.68	1.00	1.00	1.30	1.90	2.40	3.15	5.80	8.20
$\frac{7}{8}$.....	.56	.66	.74	1.10	1.10	1.45	2.05	2.60	3.45	6.30	8.90
1.....			.82	1.20	1.20	1.60	2.20	2.80	3.75	6.80	9.60
$1\frac{1}{8}$.....			.90	1.30	1.30	1.75	2.35	3.00	4.05	7.30	10.30
$1\frac{1}{4}$			1.00	1.45	1.45	1.90	2.55	3.25	4.35	7.80	11.00
$1\frac{1}{2}$			1.25	1.65	1.65	2.15	2.90	3.75	4.95	8.50	12.10
$1\frac{3}{4}$				1.95	1.95	2.45	3.35	4.25	5.55	9.30	13.40
2.....				2.25	2.25	2.75	3.80	4.75	6.15	10.40	14.70
$2\frac{1}{4}$						3.10	4.25	5.25	6.75	11.50	16.20
$2\frac{1}{2}$						3.45	4.75	5.75	7.35	12.60	17.80
$2\frac{3}{4}$						3.80	5.25	6.25	8.00	13.70	19.50
3.....						4.15	5.75	6.75	8.65	14.90	21.60

Other sizes less common or special thread screws made to order if quantity warrants.
Discounts upon application, which will vary depending upon style of head.

If nuts required, see page 207 for sizes and prices.

The coarse threads are those recommended by the National Screw Thread Commission as being more commonly used and we intend to carry stocks of only coarse threads, but will make fine thread Screws to your order if quantity is sufficient. Note: Cannot supply $\frac{1}{8}$ " long in Flat and Oval Heads.

For Monel Metal Machine Screws, see page 76.



COLD PRESSED BRASS MACHINE
SCREW NUTS

Immediate Shipment from Our Warehouse Stocks

All Standard Sizes

List Price per Gross



Hexagon



Square

Hexagon					Square				
No. Inches	Threads	Diameter across Flats Inches	Thickness Inches	List Price per Gross	No. Inches	Threads	Diameter across Flats Inches	Thickness Inches	List Price per Gross
2	56	$\frac{3}{16}$	$\frac{1}{16}$	\$1.51	2	56	$\frac{3}{16}$	$\frac{1}{16}$	\$1.28
3	48	$\frac{3}{16}$	$\frac{1}{16}$	1.51	3	48	$\frac{3}{16}$	$\frac{1}{16}$	1.28
4	40	$\frac{1}{4}$	$\frac{3}{32}$	1.08	4	40	$\frac{1}{4}$	$\frac{3}{32}$	.92
6	32	$\frac{5}{16}$	$\frac{7}{64}$	1.08	6	32	$\frac{5}{16}$	$\frac{7}{64}$	.92
8	32	$\frac{11}{32}$	$\frac{1}{8}$	1.30	8	32	$\frac{11}{32}$	$\frac{1}{8}$	1.11
10	32	$\frac{3}{8}$	$\frac{1}{8}$	1.73	10	32	$\frac{3}{8}$	$\frac{1}{8}$	1.47
10	24	$\frac{3}{8}$	$\frac{1}{8}$	1.73	10	24	$\frac{3}{8}$	$\frac{1}{8}$	1.47
12	24	$\frac{7}{16}$	$\frac{5}{32}$	2.16	12	24	$\frac{7}{16}$	$\frac{5}{32}$	1.83
$\frac{1}{4}$	20	$\frac{1}{2}$	$\frac{3}{16}$	2.81	$\frac{1}{4}$	20	$\frac{1}{2}$	$\frac{3}{16}$	2.39
$\frac{5}{16}$	18	$\frac{9}{16}$	$\frac{7}{32}$	6.05	$\frac{5}{16}$	18	$\frac{9}{16}$	$\frac{7}{32}$	5.14
$\frac{3}{8}$	16	$\frac{5}{8}$	$\frac{1}{4}$	8.21	$\frac{3}{8}$	16	$\frac{5}{8}$	$\frac{1}{4}$	6.98

Packed in One Gross Boxes.

BRASS CORNICE BOLTS

Round and Flat Head

Including Square Pressed Nuts

Immediate Shipment from Our Ware-
house Stocks



Round Head



Flat Head

List Price per 100 Pieces

Diameter of Bolt	Size of Thread	Length of Bolt					
		$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch	$\frac{3}{4}$ Inch	1 Inch	$1\frac{1}{4}$ Inch	$1\frac{1}{2}$ Inch
$\frac{3}{16}$ "	10/24	\$3.65	\$3.90	\$4.15	\$4.70	\$5.10	\$5.50
$\frac{1}{4}$ "	$\frac{1}{4}$ /20	7.45	7.85	8.25	9.05	9.65	10.50

For other sizes see list on page 206. Packed 100 per box or in bulk.
Discounts upon Application.

For Monel Metal Machine Screw Nuts and Stove Bolts, see page 71.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



BRASS CAP SCREWS

HEXAGON HEAD

U. S. Standard Thread

Immediate Shipment from
Our Warehouse Stocks

List Price per 100 Pieces



Hexagon Head
Cap Screw



Hexagon Head
Cap Screw

Length Under Head Inches	Diameter						
	$\frac{1}{4}$ Inch	$\frac{5}{16}$ Inch	$\frac{3}{8}$ Inch	$\frac{7}{16}$ Inch	$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch	$\frac{3}{4}$ Inch
$\frac{1}{2}$	\$7.75	\$8.40	\$9.25	.....	.....	.....	.....
$\frac{5}{8}$	7.90	8.60	9.50	.....	.....	.....	.....
$\frac{3}{4}$	8.00	9.00	10.00	\$12.60	.....	.....	.....
$\frac{7}{8}$	8.10	9.40	10.50	13.20	.....	.....	.....
1	8.10	9.40	10.50	13.20	\$15.00	.....	.....
$1\frac{1}{8}$	8.25	9.80	11.00	.....	.....	.....	.....
$1\frac{1}{4}$	8.25	9.80	11.00	13.80	15.75	\$25.00	\$32.50
$1\frac{1}{2}$	8.50	10.20	11.50	14.40	16.50	25.00	32.50
$1\frac{3}{4}$	9.25	11.00	12.50	15.00	17.75	26.50	34.25
2	9.75	11.80	13.50	16.00	20.25	28.00	36.00
$2\frac{1}{4}$	....	....	14.50	17.00	22.25	29.50	38.00
$2\frac{1}{2}$	....	....	15.50	18.00	22.75	31.00	39.50
3	....	....	17.50	20.00	25.25	34.00	43.00

Fillister, Flat and Round Head made to your specifications, including S. A. E. Standard, promptly.

Other sizes made to order promptly.



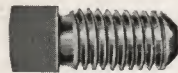
Round Point

BRASS SET SCREWS

SQUARE HEAD—CUP POINT

U. S. Standard Thread

PROMPT SHIPMENT



Cup Point

Standard Sizes

List Price per 100 Pieces

Length Under Head Inches	Diameter					
	$\frac{1}{4}$ Inch	$\frac{5}{16}$ Inch	$\frac{3}{8}$ Inch	$\frac{7}{16}$ Inch	$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch
$\frac{1}{2}$	\$8.25	\$9.25	.....	.....	.....	.....
$\frac{5}{8}$	8.50	9.50	.....	.....	.....	.....
$\frac{3}{4}$	9.00	10.00	\$12.50	\$13.25	\$13.75	.....
$\frac{7}{8}$	9.50	10.50	13.25	.....	.....	.....
1	10.00	11.00	13.75	14.50	15.00	.....
$1\frac{1}{8}$	11.00	12.00	14.50	.....	.....	.....
$1\frac{1}{4}$	11.00	12.00	15.00	15.75	16.25	\$17.50
$1\frac{1}{2}$	12.00	13.00	16.25	17.00	17.50	21.25
$1\frac{3}{4}$	13.00	14.00	17.50	18.25	18.75	23.75
2	14.00	15.00	18.75	19.50	20.00	26.25
$2\frac{1}{2}$	.....	.....	21.75	22.50	23.00	31.25
3	.....	.....	24.75	25.50	26.00	36.25

Headless Set Screws also Square, Bevel, Round, Dog, Hanger and Cone Pointed Screws made to order.

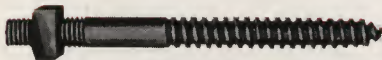
Discounts quoted upon request, which will vary depending upon style.

For Monel Metal Cap Screws and Set Screws, see pages 77 and 78.



BRASS HANGER SCREWS

With Hexagon Nut



U. S. Standard Threads

Prompt Shipment

List Price per 100 Pieces

Including one Square or Hexagon Nut

Length Over All, Inches	Diameter				
	$\frac{3}{8}$ Inch	$\frac{7}{16}$ Inch	$\frac{1}{2}$ Inch	$\frac{5}{8}$ Inch	$\frac{3}{4}$ Inch
3	\$17.00	\$20.00	\$23.20	\$32.00	\$44.00
3½	17.80	21.00	24.40	34.00	46.85
4	18.60	22.00	25.60	36.00	49.70
5	20.20	24.00	28.00	40.00	56.40
6	21.80	26.00	30.40	44.00	62.20
7	23.40	28.00	32.80	48.00	67.70
8	25.00	30.00	35.20	52.00	73.40
9	26.60	32.00	37.60	56.00	79.10
10	28.20	34.00	40.00	60.00	84.80
11	29.80	36.00	42.40	64.00	90.50
12	31.40	38.00	44.80	68.00	96.20

Sizes not listed and other non-ferrous Alloys can be fabricated promptly, if quantity warrants manufacture.

Monel Metal Hanger Screws made to order, if quantity warrants.

Discounts quoted upon application.



BRASS WOOD SCREWS

Immediate Shipment from Our Warehouse Stocks



Round Head



Flat Head



Oval Head

Price per Gross

Gauge	No. 0	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 12	No. 14	No. 16	No. 18
Diameter in Inches	.058"	.071"	.084"	.097"	.110"	.124"	.137"	.150"	.163"	.176"	.189"	.215"	.242"	.268"	.282"
Length	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1/4	.26	.28	.30	.32	.34	.40	.45	.55	.65	.80	.90	1.25	1.40	1.55	1.95
3/8	.28	.30	.32	.34	.36	.45	.50	.60	.70	.80	.90	1.00	1.10	1.20	1.40
1/2		.34	.36	.38	.40	.45	.55	.60	.70	.80	.90	1.00	1.10	1.20	1.40
5/8			.38	.40	.45	.55	.60	.70	.80	.90	1.00	1.10	1.20	1.30	1.50
3/4			.42	.45	.50	.55	.60	.70	.80	.90	1.00	1.10	1.20	1.30	1.50
1					.55	.60	.70	.80	.90	1.00	1.10	1.20	1.30	1.40	1.60
1 1/4					.60	.70	.80	.90	1.00	1.10	1.20	1.30	1.40	1.50	1.70
1 1/2						.80	.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.80
1 3/4						1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	2.00
2						1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.10
2 1/4						1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.20
2 1/2						1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.30
3						1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.40
3 1/2						1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.50

Bronze Wood Screws for prompt shipment—Use above List. Styles or Sizes not listed made to order. Discounts quoted upon application, which will vary depending upon Style of Head.

BRASS FINISHING WASHERS

COUNTERSUNK AND FLUSH TYPES



SIZES NOS. 3 TO 16 INCLUSIVE

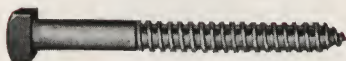
FOR WOOD SCREWS AND STOVE BOLTS

Furnished in Plain Brass, Nickel Plated Brass. Also made of Monel Metal if quantity warrants mill production. Prices upon Application. For Monel Metal, see page 80.



BRASS LAG OR COACH SCREWS

Square Head—Gimlet Point



U. S. Standard Thread

Immediate Shipment from Our Warehouse Stocks
of Sizes Indicated Above the Heavy Line

List Price per 100 Pieces

Length Under Head, Inches	Diameter						
	¼ Inch	⅜ Inch	½ Inch	⅝ Inch	¾ Inch	⅞ Inch	1 Inch
1½	\$11.00	\$12.00	\$12.90	.....	.....	.....	.....
2	11.50	12.50	13.25	\$16.20	\$17.75	\$26.00	\$38.50
2½	12.00	13.15	14.20	17.05	18.85	28.00	40.75
3	12.50	13.80	15.00	17.90	20.00	30.00	43.00
3½	13.00	14.45	15.80	18.75	21.20	32.00	45.85
4	13.50	15.10	16.60	19.60	22.40	34.00	48.70
4½	14.00	15.75	17.40	20.50	23.60	36.00	51.55
5	14.50	16.40	18.20	21.50	24.80	38.00	54.40
5½	15.00	17.05	19.00	22.50	26.10	40.00	57.25
6	15.50	17.70	19.80	23.50	27.40	42.00	60.10
7	16.50	19.00	21.40	25.50	30.00	46.00	65.85
8	17.50	20.30	23.00	27.50	32.60	50.00	71.55
9	18.50	21.60	24.60	29.50	35.20	54.00	77.25
10	19.50	22.90	26.20	31.50	37.80	58.00	82.95
11	20.50	24.20	27.80	33.50	40.40	62.00	88.65
12	21.50	25.50	29.40	35.50	43.00	66.00	94.35

Special sizes produced to specifications, if quantity warrants mill manufacture. Sizes below heavy line can be shipped promptly.

Discounts upon Application.

For Monel Metal Lag Screws, see page 81.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



F. H. Belt Rivet



O. H. Trunk Rivet



Brake Band Rivet



F. H. Hose Rivet



Bur

***Immediate Shipment from Our Warehouse Stocks**

List Price per Pound

Numbers.....	3 to 7 inc.	8	9	10	11	12	13	14	15
*In bulk.....	49	50	52	54	56	58	60	65	70
*Uniform lengths, 1 lb. boxes.....	49	50	52	54	56	58	60	65	70
Uniform lengths, ½ lb or ¾ lb. boxes.....	52	53	55	57	59	61	63	68	73
Uniform lengths, ¼ lb. boxes.....	55	56	58	60	62	64	66	71	76
*Assorted lengths, ⅜ to ¾ in., 1 lb. boxes.....	52	53	55	57	59	61	63	68	73
Assorted lengths, ⅜ to ¾ in., ½ lb. or ¾ lb. boxes.....	55	56	58	60	62	64	66	71	76
Assorted lengths, ⅜ to ¾ in., ¼ lb. boxes....	57	58	60	62	64	66	68	73	78

Discounts quoted upon application.

Tinned rivets or burs, prices upon application.

For Monel Metal Rivets and Burs, see page 83.



TABLE WEIGHT

ANACONDA COPPER BELT RIVETS AND BURS

Number of Rivets and Burs to the Pound

Size Inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	Burs
4	....	....	54	....	50	....	44	40	37	34	....	29	....	24	76
5	....	....	67	....	55	....	50	47	43	39	37	35	33	30	89
6	114	....	107	....	93	....	83	73	64	57	54	49	47	42	184
7	203	186	171	150	143	135	127	112	99	89	80	74	68	62	358
8	255	213	206	187	180	157	150	133	120	105	94	86	81	75	465
9	313	271	260	231	208	194	183	160	143	129	115	108	98	93	571
10	386	335	302	271	256	234	216	192	165	147	136	121	116	104	750
11	457	416	351	340	289	277	249	217	192	172	164	141	....	126	908
12	525	465	412	367	330	307	287	244	212	191	174	160	156	136	1243
13	650	605	510	458	422	407	363	305	278	249	227	204	....	180	1450
14	871	810	702	639	579	536	490	435	377	336	....	276	....	....	2071
15	1263	1075	934	876	755	730	628	540	480	420	....	....	....	....	3270

Variations from these figures must be expected in practice.

Copper Belt Rivets

Packed with and without Burs.

Nos. 5 to 15, all lengths from $\frac{1}{4}$ inch to 2 inches.

Oval Head Copper Trunk Rivets

Packed with and without Burs.

No. 9, all lengths from $\frac{1}{4}$ inch to $1\frac{3}{4}$ inches.

No. 12, all lengths from $\frac{1}{4}$ inch to $\frac{3}{4}$ inch.

Size or styles not listed made to order, if quantity warrants manufacture.

Anaconda Rivets and Burs are accurate to size, uniform in temper and of high purity.

They are manufactured by carefully supervised processes and are packed in attractive boxes, each containing the full specified net weight.

Flat Head Copper Hose Rivets

Packed with and without Burs.

Nos. 7 and 8, all lengths from $\frac{1}{4}$ inch to 1 inch.

Copper Brake Band Rivets, Counter-sunk Head

Sizes: Nos. 6 to 12, $\frac{3}{8}$ inch to 1 inch long over all.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



Countersunk Head



Round Head

**ANACONDA BRASS AND COPPER
RIVETS**

Immediate Shipment from Our Warehouse Stocks

List Price per Pound



Tinners'

Round and Countersunk Head									Tinners'			
Dia. of Rivet	$\frac{1}{16}$ In.	$\frac{3}{16}$ In.	$\frac{1}{4}$ In.	$\frac{5}{16}$ In.	$\frac{3}{8}$ In.	$\frac{7}{16}$ In.	$\frac{1}{2}$ In.	$\frac{1}{2}$ In. and Larger	Trade Size	Dia. in Inches	Length, Inches	Price
Length, Inches									Also Called Thousand Rivets			
$\frac{1}{8}$	\$2.00	\$1.50	\$1.00	....	....	....	....	....	$\frac{1}{2}$	.093	$\frac{5}{32}$	\$0.85
$\frac{3}{16}$	2.00	1.50	.80	\$0.80	....	....	....	....	$\frac{3}{4}$	.106	$\frac{3}{16}$	.80
$\frac{1}{4}$	1.50	1.25	.80	.70	\$0.65	....	....	....	1	.112	$\frac{13}{64}$	.80
$\frac{5}{16}$	1.50	1.25	.75	.70	.65	....	....	....	$1\frac{1}{4}$	.120	$\frac{7}{32}$	.75
$\frac{3}{8}$70	.70	.65	\$0.60	....	....	$1\frac{1}{2}$	.130	$\frac{15}{64}$	.75
$\frac{7}{8}$70	.65	.65	.60	....	....	$1\frac{3}{4}$	.134	$\frac{1}{4}$	.75
$\frac{1}{2}$70	.65	.65	.60	\$0.60	....	2	.145	$\frac{17}{64}$	.70
$\frac{5}{8}$70	.65	.65	.60	.60	....	$2\frac{1}{2}$	.148	$\frac{9}{32}$	.70
$\frac{3}{4}$70	.65	.65	.60	.60	Spec.	3	.160	$\frac{5}{16}$	.70
$\frac{7}{8}$70	.65	.65	.60	.60	"	$3\frac{1}{2}$	.163	$\frac{21}{64}$	.70
170	.65	.65	.60	.60	"	4	.176	$\frac{11}{32}$	.70
$1\frac{1}{8}$65	.65	.60	.60	"	5	.186	$\frac{3}{8}$	.70
$1\frac{1}{4}$65	.65	.60	.60	"	6	.203	$\frac{25}{64}$	.70
$1\frac{3}{8}$65	.65	.60	.60	"	For Weight of Round and Countersunk Head Rivets See page 216			
$1\frac{1}{2}$65	.65	.60	.60	"				
$1\frac{3}{4}$65	.65	.60	.60	"				
265	.65	.60	.60	"				
$2\frac{1}{4}$65	.60	.60	"				
$2\frac{1}{2}$65	.60	.60	"				
$2\frac{3}{4}$65	.60	.60	"				
365	.60	.60	"				
$3\frac{1}{2}$	Spec.	"				
4	"	"				

Packing: Tinners' Rivets and sizes up to $\frac{1}{8}$ " inclusive in 1 pound boxes.

All other sizes in 5 pound boxes.

Sizes not listed made to order promptly, if quantity warrants manufacture.

Discount Quoted upon Application.

For Monel Metal and Pure Nickel Rivets, see pages 82, 83 and 84.



O. H. Brazier's Rivet

ANACONDA OVAL HEAD AND
FLAT HEAD COPPER
BRAZIERS' RIVETS



F. H. Brazier's Rivet

Immediate Shipment from Our Warehouse Stocks

List Price per Pound

Oval Head				Flat Head		
Size of Rivet	Diameter of Shank Inches	Length under Head Inches	List Price Per Pound	Diameter of Shank Inches	Length under Head Inches	List Price Per Pound
No. 00	$\frac{5}{32}$	$\frac{5}{16}$	\$0.50	$\frac{1}{4}$	$\frac{1}{2}$	\$0.50
0	$\frac{3}{16}$	$\frac{3}{8}$	.50	$\frac{1}{4}$	$\frac{3}{4}$	.45
1	$\frac{1}{4}$	$\frac{1}{2}$	.50	$\frac{1}{4}$	1	.45
2	$\frac{17}{64}$	$\frac{1}{2}$	.50	$\frac{1}{4}$	$1\frac{1}{4}$	.45
3	$\frac{9}{32}$	$\frac{5}{8}$	.45	$\frac{1}{4}$	$1\frac{1}{2}$	.45
4	$\frac{5}{16}$	$\frac{11}{16}$	.45	$\frac{5}{16}$	$\frac{3}{4}$	.45
5	$\frac{23}{64}$	$\frac{3}{4}$	.45	$\frac{5}{16}$	1	.45
6	$\frac{3}{8}$	$\frac{13}{16}$	.40	$\frac{5}{16}$	$1\frac{1}{4}$	.45
7	$\frac{7}{16}$	$\frac{15}{16}$	.40	$\frac{5}{16}$	$1\frac{1}{2}$	.45
8	$\frac{17}{32}$	$1\frac{1}{8}$	.40	$\frac{5}{16}$	2	.45
9	$\frac{5}{8}$	$1\frac{1}{4}$	.40	$\frac{3}{8}$	1	.40
10	$\frac{21}{32}$	$1\frac{1}{4}$	.40	$\frac{3}{8}$	$1\frac{1}{4}$	.40
<p>Sizes not listed can be made to order promptly. Sizes Nos. 00, 0, 1, Rivets are put up in one pound boxes. Other sizes packed in five pound boxes.</p>				$\frac{3}{8}$	$1\frac{1}{2}$	.40
				$\frac{3}{8}$	2	.40
				$\frac{1}{2}$	1	.40
				$\frac{1}{2}$	$1\frac{1}{4}$	.40
				$\frac{1}{2}$	$1\frac{1}{2}$	.40
				$\frac{1}{2}$	2	.40

Discount Quoted upon Application.
See next page for the number of pieces per pound.
For Monel Metal Braziers' Rivets, see page 83.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



NUMBER OF PIECES PER POUND ANACONDA BRASS AND COPPER RIVETS

Round and Countersunk Head

Length in Inches	Diameter							
	$\frac{3}{8}$ Inch	$\frac{1}{2}$ Inch	$\frac{3}{4}$ Inch	No. 5	No. 6	$\frac{1}{2}$ Inch	No. 7	No. 8
$\frac{1}{2}$	28	48	83	96	130	150	160	210
$\frac{3}{4}$	24	39	62	84	104	125	136	160
$\frac{7}{8}$	22	31	55	75	91	108	116	142
1	20	28	50	64	83	94	102	125
$1\frac{1}{4}$	18	26	43	52	68	80	88	110
$1\frac{1}{2}$	16	22	38	46	62	71	75	96
$1\frac{3}{4}$	14	20	33	42	54	64	67	83
2	13	18	29	37	48	56	60	72
$2\frac{1}{4}$	12	16	25	34	41	48	52	66
$2\frac{1}{2}$	11	15	23	32	37	44	47	57
$2\frac{3}{4}$	10	14	21	30	34	40	43	52
3	9	13	20	28	31	37	39	48
$3\frac{1}{4}$	9	12	19	27	29	35	37	46
$3\frac{1}{2}$	8	12	18	25	27	33	35	44
$3\frac{3}{4}$	7	11	17	23	26	32	34	43
4	7	10	16	22	25	31	33	41

For an approximate calculation of pieces on Countersunk Head Rivets deduct 5% from the above figures.

ANACONDA COPPER BRAZIERS' RIVETS

Oval Head

Nos.	00	0	1	2	3	4	5	6	7	8	9	10
No. to Lb.	160	148	66	49	37	28	23	19	13	8	6	5

Flat Head

$\frac{1}{4}$ Inch diameter of shank by.....	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "
Number to pound.....	50	48	36	32	30
$\frac{5}{16}$ Inch diameter of shank by.....	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "
Number to pound.....	26	24	21	17	17
$\frac{3}{8}$ Inch diameter of shank by.....	1"	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	2"
Number to pound.....	17	15	13	12	10
$\frac{1}{2}$ Inch diameter of shank by.....	1"	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	2"
Number to pound.....	9	8	7	6	5

Variations from above weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



BRASS ESCUTCHEON PINS



Round Head



Standard Sizes

Immediate Shipment from Our Warehouse Stocks

List Price per Pound

Length Under Head	¼ Inch	⅜ Inch	½ Inch	⅝ Inch	¾ Inch	⅞ Inch	1 Inch	1¼ In.	1½ In.	1¾ In.	2 In.
Gauge	Price and Number of Pieces per Pound										
10.....	....	.85	.80	.78	.76	.75	.74	.72	.71	.70	.69
No. per lb.	....	....	....	....	....	....	....	....	....	....	....
11.....	....	.95	.87	.84	.82	.80	.78	.76	.75	.74	.73
No. per lb.	....	....	....	....	....	....	....	....	....	....	....
12.....	1.15	.98	.93	.90	.87	.85	.83	.79	.77	.76	.75
No. per lb.	1120	720	650	460	416	400	336	272	212	192	170
13.....	1.20	1.03	.98	.93	.90	.87	.84	.80	.78	....	....
No. per lb.	1373	1120	948	672	528	480	400	380	320	....	....
14.....	1.25	1.05	1.00	.96	.92	.88	.85	.81	.80	....	....
No. per lb.	1875	1312	1100	950	830	692	600	432	378	....	....
15.....	1.35	1.15	1.07	1.00	.95	.92	.90	.86	.84	....	....
No. per lb.	2440	1820	1376	1152	960	888	720	676	580	....	....
16.....	1.45	1.20	1.10	1.03	.99	.96	.94	.90	.88	....	....
No. per lb.	3100	2240	1730	1460	1275	1130	980	720	592	....	....
17.....	1.60	1.40	1.25	1.17	1.10	1.04	1.00	.96	.94	....	....
No. per lb.	3540	2700	2076	1812	1500	1185	1051	928	800	....	....
18.....	1.90	1.50	1.35	1.27	1.20	1.15	1.10	....	....	....	....
No. per lb.	4972	3175	2550	2450	2200	1740	1520	....	....	....	....
19.....	2.15	1.75	1.60	1.45	1.35	1.30	1.25	....	....	....	....
No. per lb.	7303	5140	4130	3565	2900	....	....	....	....	....	....
20.....	2.35	2.10	1.95	1.80	1.65	....	....	....	....	....	....
No. per lb.	9932	8419	6374	5500	4155	....	....	....	....	....	....

Packed in 1 pound boxes and 100 pound kegs.

Sizes not listed made to order promptly.

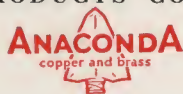
Nickel (German) Silver and Copper Escutcheon Pins can be shipped promptly in any standard size or to your specifications.

Variations from above weights must be expected in practice.

Discounts Quoted upon Application.

See page 89 for Monel Metal Escutcheon Pins.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

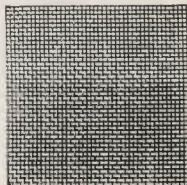


BRASS AND COPPER WIRE CLOTH

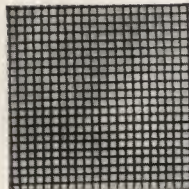
MARKET GRADE

All 36 Inches Wide

List Price per Square Foot



40 Mesh—.010"



24 Mesh—.0137"

Immediate Shipment from Our Warehouse Stocks

Size of Mesh	Size of Wire Old English Gauge	Diameter of Wire in Inch	Size of Opening Inch	List Price per Square Foot
2	16	.065	.435	\$.60
3	17	.058	.275	.70
4	18	.049	.201	.65
6	20	.035	.132	.60
8	22	.029	.096	.70
10	23	.027	.073	.75
12	24	.025	.058	.85
14	25	.0239	.048	.80
16	26	.0205	.043	.70
18	27	.0187	.0368	.65
20	28	.0165	.0335	.60
24	30	.0137	.0279	.60
30	31	.0122	.021	.65
40	33	.010	.0147	.65
50	35	.009	.010	.80
60	36	.0075	.0091	.90
70	37	.0065	.0077	.80
80	38	.0057	.0675	1.25
90	39	.0050	.0061	1.50
100	40	.0045	.0055	1.75

Special Widths or Meshes Made to Order for Prompt Shipment.

Discounts Quoted upon Application.

TINNED BRASS WIRE CLOTH

40 Mesh—.010" Wire—22", 24" and 36" Wide

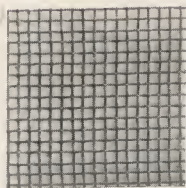
Immediate Shipment. Prices upon Application.

For Gauging Wire, the Standard Gauges are Washburn and Moen Gauge for Iron and Steel, Galvanized and Tinned Wire; the Old English Gauge for Brass, Copper and Bronze Wire; and the Brown and Sharpe Gauge for Monel Metal, Pure Nickel and Aluminum Wire. It is advisable, however, to order all Wire by Decimal Part of an Inch.

For Monel Metal Wire Cloth, see page 85.



INSECT SCREEN CLOTH



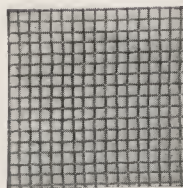
16 Mesh

"BRIGHT FINISH" BRONZE

Nos. 14, 16 and 18 mesh—18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46 and 48 inches wide.

"ANTIQUÉ FINISH" BRONZE

Nos. 14 and 16 mesh—18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46 and 48 inches in width.



18 Mesh

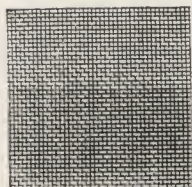
"BRIGHT FINISH" PURE COPPER

Nos. 14, 16 and 18 mesh—18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46 and 48 inches wide

In Rolls of 100 Linear Feet

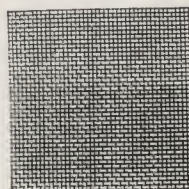
Immediate Shipment from Our Warehouse Stocks

BRASS, COPPER AND BRONZE VISION SCREENS



50 Mesh

For office signs and windows of No. 50 mesh—36 Gauge wire—24" to 52" wide. Special Specifications to suit requirements. Prices upon Request.

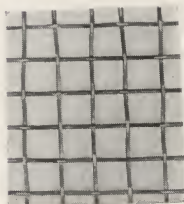


50 Mesh

BRONZE AND COPPER GUARD CLOTH

36" wide, No. 4 mesh, .049" wire—No. 3 mesh, .058" wire for Stock Shipment

Prompt Mill Shipment of 24" and 30", Nos. 3 or 4 or any Special Mesh



Guard Screen

BRONZE AND COPPER TACKS COPPER STAPLES and COPPER BRADS AND NAILS

See pages 222 and 223

NUMERAL NAILS



HEADS OF SOLID BRASS—BLACK ENAMELED NUMERALS

Nos. 0 to 99 Ready to Ship

Numerals from Nos. 100 to 999 or to your Specifications Made to Order, if Quantity Warrants

Metal Screen Lifts and Door Pulls and Hinges

Prices Quoted upon Application

For Monel Metal Screen Cloth, see page 85.



EXTRA FINE BRONZE WIRE CLOTH

Standard Sizes 24", 30", 36" wide

Prompt Shipment from the Mill

PLAIN				TWILLED			
Mesh	Diameter of Wire Inch	Size of Opening Inch	List Price Square Foot	Mesh	Diameter of Wire Inch	Size of Opening Inch	List Price Square Foot
100	.0045	.0055	\$1.75	110	.0045	.0046	\$1.85
110	.004	.0051	1.85	120	.004	.0043	2.00
120	.0037	.0046	2.00	130	.0038	.0039	2.25
130	.0034	.0043	2.25	140	.0033	.0038	2.50
140	.0029	.0042	2.50	150	.0030	.0037	2.75
150	.0026	.0041	2.75	160	.0028	.0035	3.00
160	.0025	.0038	3.00	170	.0026	.0033	3.50
170	.0024	.0035	3.50	180	.0025	.0031	4.00
180	.0023	.0033	4.00	190	.0024	.0029	4.25
190	.0022	.0031	4.25	200	.0023	.0027	4.50
200	.0021	.0029	4.50	220	.0019	.0026	5.00
220	.0017	.0028	5.00	240	.0017	.0025	6.00
240	.0016	.0026	6.00	250	.0016	.0024	6.50
250	.0016	.0024	6.50				

Special Widths Made to Order.

Discounts upon Application.

BRASS STRAINER CLOTH

Standard Sizes

Immediate Shipment from Our Warehouse Stocks

In the following Sizes

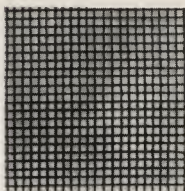
Rolls 12" x 60"

Meshes 30, 40, 50, 60, 70, 80, 90 and 100

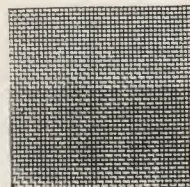
Rolls 36" wide up to 100 feet long

Meshes 40, 50, 60 and 80

Prices Quoted upon Application



30 Mesh
Strainer Cloth



40 Mesh
Strainer Cloth

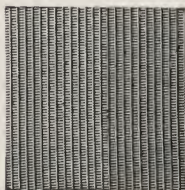
FILTER CLOTH

BRASS—COPPER—BRONZE

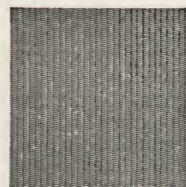
Dutch, Twilled and Plain Weave

in all Sizes and Meshes

Promptly from Mill



24 x 110
Dutch Weave



30 x 150
Twilled Dutch Weave

VENTILATOR AND AIR BRAKE SCREENS

Meshes and Widths to suit your Requirements

Prompt Mill Shipment

For Monel Metal Fine Meshes and Filter Cloth, see page 85.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

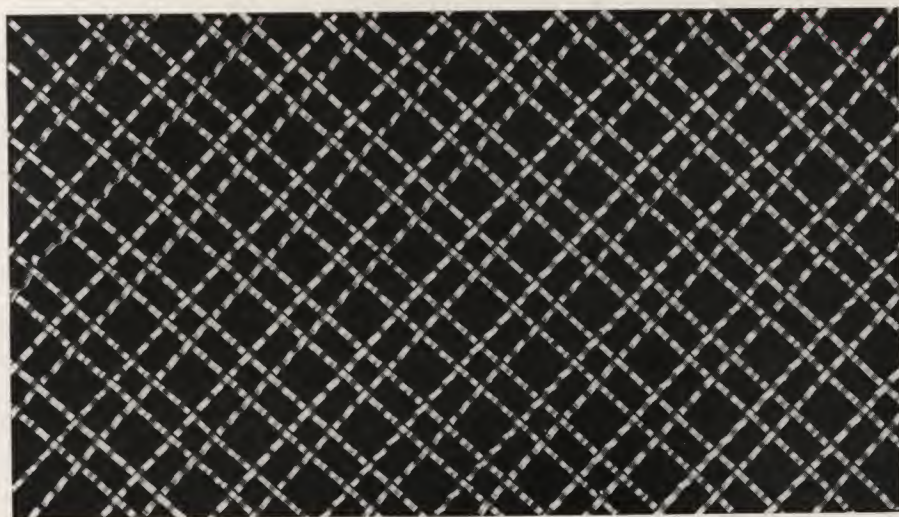


FANCY PATTERN WIRE CLOTH

GRILLES—GUARDS—BASKETS

Made in all Metals

Manufactured in Sizes to Meet Your Requirements



FANCY PATTERN WIRE CLOTH

Especially designed for Grilles used in Radiator Covers, Ventilators, Cabinets, Fire-place Screens, Baskets, Door Guards, etc.

Prices Quoted upon Application

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



COPPER NAILS

Made from Anaconda Copper

Immediate Shipment from Our Warehouse Stocks

All Standard Sizes

List Extras over Base in Cents per Pound



Wire Nail



Cut Nail



Slating Nail

COMMON WIRE NAILS			SLATING NAILS			COMMON CUT NAILS	
Length and Stubs' Gauge	Extra	Approx. Number per Lb.	Length and Stubs' Gauge	Extra	Approx. Number per Lb.	Length of Nail	Extra
$\frac{1}{8}$ " 16	\$.06	1450	$\frac{7}{8}$ " 12	\$.01 $\frac{1}{2}$	300	$\frac{3}{4}$ "	\$.00 $\frac{3}{4}$
$\frac{3}{8}$ " 16	.05	1250	2d 1" 12	.01 $\frac{1}{4}$	270	$\frac{7}{8}$ "	.00 $\frac{1}{2}$
$\frac{3}{8}$ " 16	.04 $\frac{1}{4}$	1050	1" 11	.01 $\frac{1}{4}$	200	2d 1"	Base
$\frac{7}{8}$ " 16	.04	900	3d 1 $\frac{1}{4}$ " 12	.00 $\frac{3}{4}$	230	1 $\frac{1}{8}$ "	Base
2d 1" 15	.03 $\frac{3}{4}$	575	1 $\frac{1}{4}$ " 11	.00 $\frac{3}{4}$	190	3d 1 $\frac{1}{4}$ "	Base
1" 13	.01 $\frac{3}{4}$	450	1 $\frac{1}{4}$ " 10	Base	144	4d 1 $\frac{1}{2}$ "	Base
3d 1 $\frac{1}{4}$ " 14	.01 $\frac{1}{2}$	400	4d 1 $\frac{1}{2}$ " 12	.00 $\frac{3}{4}$	200	5d 1 $\frac{3}{4}$ "	Base
1 $\frac{1}{4}$ " 11	.00 $\frac{3}{4}$	195	1 $\frac{1}{2}$ " 11	.00 $\frac{3}{4}$	160	6d 2"	Base
4d 1 $\frac{1}{2}$ " 13	.01 $\frac{1}{4}$	275	1 $\frac{1}{2}$ " 10	Base	135	7d 2 $\frac{1}{4}$ "	Base
1 $\frac{1}{2}$ " 11	.00 $\frac{3}{4}$	165	5d 1 $\frac{3}{4}$ " 12	.00 $\frac{3}{4}$	225	8d 2 $\frac{1}{2}$ "	Base
5d 1 $\frac{3}{4}$ " 13	.01 $\frac{1}{4}$	230	1 $\frac{3}{4}$ " 10	Base	112	10d 3"	Base
6d 2" 12	.00 $\frac{3}{4}$	170	6d 2" 12	.00 $\frac{3}{4}$	150	12d 3 $\frac{1}{4}$ "	Base
2" 10	Base	100	2" 11	.00 $\frac{3}{4}$	120	16d 3 $\frac{1}{2}$ "	Base
7d 2 $\frac{1}{4}$ " 11	.00 $\frac{3}{4}$	100	2" 10	Base	100	20d 4"	Base
8d 2 $\frac{1}{2}$ " 10	Base	90	7d 2 $\frac{1}{4}$ " 10	Base	85	All nails packed in 5 lb. boxes or in 100 lb. kegs; also to your specification.	
2 $\frac{1}{2}$ " 8	Base	80	8d 2 $\frac{1}{2}$ " 10	Base	75		
10d 3" 9	Base	60	10d 3" 10	Base	65		
16d 3 $\frac{1}{2}$ " 8	Base	40					
20d 4" 6	Base	30					
30d 4 $\frac{1}{2}$ " 5	Base	15					
40d 5" 6	Base	12					
60d 6" 2	Base	7					

*CUT SLATING NAILS		*SHEATHING NAILS		*CLOUT NAILS	
Length of Nail Inches	Extras in Cents per pound	Length of Nail Inches	Extras in Cents per pound	Length of Nail Inches	Extras in Cents per pound
$\frac{3}{4}$	\$.00 $\frac{3}{4}$	$\frac{3}{4}$	\$.00 $\frac{3}{4}$	$\frac{3}{4}$	\$.00 $\frac{3}{4}$
$\frac{7}{8}$	.00 $\frac{1}{2}$	$\frac{7}{8}$	.00 $\frac{1}{2}$	$\frac{7}{8}$	.00 $\frac{1}{2}$
1	Base	1	Base	1	Base
1 $\frac{1}{4}$	Base	1 $\frac{1}{4}$	Base	1 $\frac{1}{4}$	Base
1 $\frac{1}{2}$	Base	1 $\frac{1}{2}$	Base	1 $\frac{1}{2}$	Base
				1 $\frac{3}{4}$	Base
				2	Base



Base Price Quoted upon Request.

Copper Wire Gutter Spikes—7" x $\frac{3}{16}$ " and 7" x $\frac{1}{4}$ "—also 6" No. 2.

Sizes not Listed can be Made to Order Promptly.

*Yellow Metal or Composition Nails in Sheathing cut and Clout also carried in same sizes as above.

Brass or Bronze cut or Wire Nails Made to Order. Prompt Shipment.

Prices upon Application.

Variations from above weights must be expected in practice.

For Monel Metal Nails, see page 88.



COPPER TACKS AND STAPLES

MADE FROM ANACONDA COPPER
In One Pound Boxes

Immediate Shipment from Our Warehouse Stocks
Standard Sizes



CUT TACKS				WIRE STAPLES	
Size of Tacks Inches	Extra over Base	App. Number per Pound		Size and Gauge	Extra over Base
		Flat Head	Oval Head		
1/4	\$.0475	6000	5000	1/4" — 18	\$.20
5/16	.035	4000	3500	3/8" — 18	.10
3/8	.0225	3000	2700	3/8" — 16	.08
7/16	.01	1800	1720	1/2" — 18	.10
1/2	.006	1570	1500	1/2" — 16	.08
9/16	.003	1400	1350	5/8" — 18	.06
5/8	.0015	930	900	5/8" — 16	.05
3/4	Base	850	825	3/4" — 16	.04
7/8	Base	640	600	3/4" — 14	.03
1	Base	525	500	7/8" — 14	.03
1 1/4	Base	350	330	1" — 13	.02
1 1/2	Base	240	220	1" — 12	.01

Also packed in 1/2 pound papers or in bulk to suit your requirements.
Special sizes made to order for prompt mill shipment if quantity warrants manufacture.
Variations from above weights must be expected in practice.
Base Price Quoted upon Application.
Brass and Bronze Tacks can be shipped promptly.
Oval Head Tacks and Special Wire Staples made to order promptly.

COPPER BOAT NAILS



Made to your specifications if quantity warrants manufacture

COPPER FINISHING NAILS



1" No. 15, 1 1/4" No. 14, 1 1/2" No. 13, 2" No. 12
Prompt Shipment

BRASS WIRE NAILS



In sizes 1/2" No. 16 to 6" No. 2 made to order promptly

COPPER BRADS

For Prompt Shipment Prices upon Application
For Monel Metal Tacks and Staples, see page 89.



"HOLTITE" BRAZING SOLDER

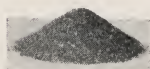
Descriptive Table of "Holtite" Brazing Solders

Giving Numbers, Grains, Sizes, Colors and Melting and Freezing Temperatures

Spelter Solder Number	Grain	Size	Color	Melting Point		Freezing Point	
				°C	°F	°C	°F
40*	Round	Extra Fine	Yellow	882	1620	868	1595
41*	Round	Fine	Yellow	882	1620	868	1595
42*	Round	Medium Fine	Yellow	882	1620	868	1595
43*	Round	Medium Coarse	Yellow	882	1620	868	1595
44	Round	Coarse	Yellow	882	1620	868	1595
45	Round	Extra Coarse	Yellow	882	1620	868	1595
51	Round	Fine	Yellow	882	1620	871	1600
52	Round	Medium Fine	Yellow	882	1620	871	1600
61*	Round	Fine	Gray	813	1495	782	1440
62*	Round	Medium Fine	Gray	813	1495	782	1440
91	Round	Fine	Gray	868	1595	849	1560
92	Round	Medium Fine	Gray	868	1595	849	1560
100*	Long	Extra Fine	Yellow	882	1620	868	1595
101*	Long	Fine	Yellow	882	1620	868	1595
103*	Long	Medium Fine	Yellow	882	1620	868	1595
105*	Long	Coarse	Yellow	882	1620	868	1595
106	Long	Extra Coarse	Yellow	882	1620	868	1595
500	Lump	.....	Yellow	882	1620	868	1595
520	Lump	.....	Yellow	882	1620	871	1600
1200	Long	Coarse	Yellow	882	1620	871	1600
1407	Round	Fine to Medium	Yellow	882	1620	871	1600
		Coarse Mixed	Black	782	1440	752	1385
Black Button	Round	Fine	Black	782	1440	752	1385

Prices upon Application.

* Grades Carried in Stock Ready to Ship.



No. 61—Fine
Gray



No. 100—Extra Fine
Long Grain



No. 101—Fine
Long Grain



No. 103—Medium Fine
Long Grain



No. 105—Coarse
Long Grain



No. 40—Extra Fine
Round Grain



No. 41—Fine
Round Grain



No. 42—Medium Fine
Round Grain



No. 43—Coarse
Round Grain



No. 62—Medium
Gray

Packed in 1 Pound Boxes—10 and 25 Pound Cans—50-100 and 250 Pound Cases.
See Following Page for Properties, Uses, Practice of Mixing and Using of "Holtite"
Brazing Solder.

Also, Brazing Wire $\frac{1}{16}$ " to $\frac{1}{4}$ " Dia. in Coils Ready to Ship from Our Warehouse Stocks.
See page 226 for Half and Half Solder, etc.



"HOLTITE" BRAZING SOLDER

Properties and Uses. Practice of Mixing and Using

No definite rules can be made with regard to proportions for various uses as different persons follow different methods, making the personal equation a factor.

The grade or grain of solder best suited to any particular purpose is determined largely by experience; but the practice outlined for the following operations has been found to give satisfactory results.

PREPARATION OF BORAX

Cover the bottom of a pan with a thin, even layer of ordinary Borax and heat over a slow fire until it will crumble in the fingers to a fine, dry powder. An hour's heating should be sufficient.

In addition to Borax, prepared fluxes, such as "Fluxine," are being offered which give satisfactory results.

PREPARATION OF SOLDER

Mix the appropriate grade or grain of "HOLTITE" Solder with the Burnt Borax in the proportions determined for the use required. Pound or grind these together for a considerable period, (it is better to continue the operation for 1½ to 2 hours) while gradually adding enough water to bring the mixture to the consistency of putty. This will serve as a supply which for later use may be softened by working in a little water, if it has become hardened by evaporation.

FOR STEEL BARRELS, DRUMS AND BOILERS, OR FOR BICYCLE AND MOTORCYCLE FRAMES

These are usually dipped in a bath of molten Brazing Solder and flux. Lump Solders, Nos. 500 and 520, are used for this purpose.

FOR BRASS AND STEEL TUBES

Use 10 lbs. of "HOLTITE" Brazing Solder to 1 lb. of Burnt Borax. Place a small quantity of the prepared solder in a brazier's dish, thinning with water to about the consistency of cement for grouting, and apply to the articles. This formula may be modified to suit conditions.

FOR STEEL TUBES AND KINDRED PRODUCTS

Manufacturers generally obtain the best results with the round grains, such as Nos. 40, 41, 42, 4234, 43, 44 and 45.

FOR TUBES OF BRASS, BRONZE AND COPPER ALLOYS

Nos. 40 and 41 are the most suitable.

GENERAL COPPER-SMITHING AND MARINE WORK

In these classes of work, both the long and round grains are used, the long grain being preferred in most cases.

FOR SMALL METAL WARES

For gas and electric fixtures, etc., requiring a reasonably strong union, our Nos. 61 or 62 and 91 or 92, are especially adapted. These series flow freely under moderate heat.

FOR SHEET METAL AND CAST BUTTONS

Use 10 lbs. 2 oz. of quick-running Gray Brazing Solder (our Nos. 61 or 62; 91 or 92) to 1 lb. 10 oz. of prepared Borax. Apply solder mixture with small brush around eye of button. (Shell must be thoroughly clean before application of solder.) After brazing, the button is then pickled and cleaned in the usual way for finishing.

In some cases manufacturers use blow-pipes (rather than continuous or automatic gas furnaces) for fusing the solder, an operation requiring about a minute and a half.

ASSEMBLING METAL BUTTONS AND SIMILAR PARTS

Where great strength is not essential our Black Button Solder is most suitable, as it flows at a low temperature. Satisfactory results are obtained from a mixture of 6 lbs. of this Solder and 1 lb. of Burnt Borax, diluted with water to a paste that can be easily applied with a brush.

MELTING POINTS OF VARIOUS MATERIALS BRAZED WITH BRAZING SOLDER

Material	Composition		Melting Point	
	Copper	Zinc	°C.	°F.
Copper.....	99.90	.....	1084	1983
Commercial Bronze.....	90.00	10.00	1050	1922
Low Brass.....	80.00	20.00	1000	1832
Brazing Brass.....	75.00	25.00	980	1796
Commercial Brass.....	65.00	35.00	900	1652
Sheet Steel or Iron.....	.....	.....	About 1520	2768

Descriptive table showing grains, sizes, colors and melting and freezing temperatures will be found on page 224.

SOLDER

Immediate Shipment from Our Warehouse Stocks

HALF AND HALF BAR SOLDER

Whitehead's Best (50-50) in about 1½ pound bars.

Whitehead's Monogram (46-54) in about 1½ pound bars.

Whitehead's Wiping (40-60) in about 1½ pound bars.

Whitehead's Warranted (48-52) in about 1½ pound bars.

Whitehead's Wiping (40-60) in 5 pound cakes.
Any Formula Made to Order Promptly.

Also Made in Boston and Capping Bars
which weigh about ¾ pounds each.



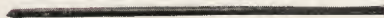
Whitehead's Best



Whitehead's Monogram



Wiping



Capping Bar



Boston Bar

WIRE SOLDER

In Coils or on Spools about 25 lbs. each
Grades; 50-50; 48-52; 40-60 of 1/8" diameter

PURE BLOCK TIN

Carried in Bars about 1½ lbs. each

SILVER SOLDER

In Coils of One Ounce



Silver Solder

Ribbon: 1/2", 5/8", 3/4" wide; .003" and .004" thick.

Wire: 1/2", 3/8", 1/4", 1/8" wide; 1/8", 3/32", 1/16", 1/32" thick; 12" to 24" long.

Also sizes to your own Specifications.

Prices Quoted upon Application

BABBITT METALS

Hardware and Special Grades

Hardware Grades are carried in Stock ready to Ship
Special Grades can be Made to Formula furnished us, promptly.

Prices Quoted upon Application

COPPER (SHOT) ALLOY

Packed in 5 or 10 pound bags or in bulk

Immediate Shipment from Stock



FORGED SOLDERING COPPERS



Roofing Pattern Soldering Copper



Pointed Pattern Soldering Copper



Flat Bottom Soldering Copper

Standard Sizes

Immediate Shipment from Our Warehouse Stocks

List Extras over Base Price per Pound

Size	Pointed Pattern	Flat Bottom Pattern	Roofing Pattern	Swivel Hatchet Pattern	Riveted Handle Pattern
¼ pound to pair...	\$.60	...	...	...	...
½ pound to pair...	.20	...	...	...	...
¾ pound to pair...	.12	...	...	...	...
1 pound to pair...	.06	...	...	...	...
1½ pound to pair...	.03	...	...	...	...
2 pound to pair...	.02	...	...	...	\$.02
2½ pound to pair...	.01	...	...	...	...
3 pound to pair...	Base	Base	...	Base	Base
4 pound to pair...	Base	Base	...	Base	Base
5 pound to pair...	Base	Base	...	Base	Base
6 pound to pair...	Base	Base	...	Base	Base
7 pound to pair...	Base	...	...	...	...
8 pound to pair...	Base	Base	Base	...	...
9 pound to pair...	Base	...	...	...	...
10 pound to pair...	Base	...	Base	...	...
12 pound to pair...	Base	...	Base	...	...

Items showing the extras indicate sizes carried in Stock.

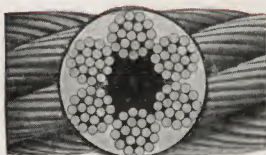
Single orders over 100 pounds and less than 300 pounds add ½c. to Base Price. Less than 100 pounds add 2c. to Base Price.

Wooden Handles for the above Pointed and Flat Bottom Coppers are carried in Stock.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.



PHOSPHOR BRONZE WIRE ROPE AND PHOSPHOR BRONZE AND COPPER SASH CORD



6 x 19 Construction
(Cable)



6 x 6 x 7 Construction
(Tiller Rope)



6 x 7 Construction
(Sash Cord)

Prompt Mill Shipment

List Price per Foot

Hoisting Rope 6 Strands—19 Wires—Hemp Center				Tiller Rope 6 Strands of 42 Wires Each—Hemp Center			
Diameter in Inch	List Price	Approx. Strength in Pounds	Proper Working Load in Lbs.	Diameter in Inch	List Price	Approx. Strength in Pounds	Number of Wires
$\frac{1}{8}$	\$0.06	500	50	* $\frac{1}{8}$	\$0.06	500	114
$\frac{3}{16}$	.08	1,000	100	* $\frac{3}{16}$	.08	1,000	114
$\frac{1}{4}$	.12	1,800	180	$\frac{1}{4}$	.15	1,500	252
$\frac{5}{16}$	.15	3,000	300	$\frac{5}{16}$	.18	2,000	252
$\frac{3}{8}$	.22	5,000	500	$\frac{3}{8}$	.22	3,500	252
$\frac{7}{16}$	.26	6,500	650	$\frac{7}{16}$	.26	4,500	252
$\frac{1}{2}$	.33	8,000	1,000	$\frac{1}{2}$	.32	6,000	252
$\frac{5}{8}$	.50	12,000	2,000	$\frac{5}{8}$	.43	8,000	252
$\frac{3}{4}$	.70	18,000	3,500	$\frac{3}{4}$	.60	11,000	252

*Tiller Rope $\frac{1}{8}$ " and $\frac{3}{16}$ " diameter is of same construction as Hoisting Rope.

Phosphor Bronze Sash Cord 6 Strands—7 Wires—with Hemp Centers				Copper Sash Cord 6 Strands—7 Wires—with Hemp Centers			
Diameter in Inch	List Price	Approx. Weight per Foot	Approx. Strength in Pounds	Diameter in Inch	List Price	Approx. Weight per Foot	Approx. Strength in Pounds
$\frac{1}{16}$	\$0.02 $\frac{1}{2}$	.007	200	$\frac{1}{16}$	\$0.03	.007	140
$\frac{3}{32}$	.03	.016	450	$\frac{3}{32}$	.03 $\frac{1}{2}$	.016	275
$\frac{1}{8}$	.04	.029	600	$\frac{1}{8}$	.04 $\frac{1}{2}$	.029	435
$\frac{5}{32}$	.05	.038	800	$\frac{5}{32}$	.05 $\frac{1}{2}$	.038	600
$\frac{3}{16}$	.07	.065	1,000	$\frac{3}{16}$	.06	.065	800
$\frac{7}{32}$	.08 $\frac{1}{2}$	.087	1,200	$\frac{7}{32}$	.07 $\frac{1}{2}$	.087	1,025
$\frac{1}{4}$	.10	.115	1,500	$\frac{1}{4}$	.09	.115	1,275

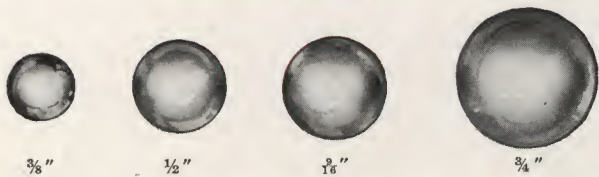
Sizes not listed or other constructions made to order.

Variations from above weights must be expected in practice.

Discounts Quoted upon Application.

For Monel Metal Cable, Tiller Rope and Sash Cord, see page 90.

SOLID BALLS



BRASS—BRONZE—ALUMINUM

Prompt Shipment. Price per 1000 Pieces

Diameter in Inches	Decimal in Inches	Weight of Brass and Bronze Balls in Following Quantity		List Price per 1000
1/8	.1250	10000	3.1 pounds	\$8.00
5/32	.1562	5000	3.0 pounds	9.00
3/16	.1875	5000	5.1 pounds	11.00
7/32	.2187	5000	8.1 pounds	13.00
1/4	.2500	2000	4.8 pounds	15.00
9/32	.2812	2000	6.8 pounds	19.00
5/16	.3125	1000	4.7 pounds	25.00
11/32	.3437	1000	6.2 pounds	30.00
3/8	.3750	1000	8.0 pounds	34.00
7/16	.4375	500	6.5 pounds	60.00
1/2	.5000	500	9.5 pounds	88.00
9/16	.5625	500	13.4 pounds	126.00
5/8	.6250	250	9.3 pounds	172.00
11/16	.6875	200	10.0 pounds	212.00
3/4	.7500	200	12.6 pounds	252.00
13/16	.8125	150	12.4 pounds	336.00
7/8	.8750	125	12.7 pounds	372.00
15/16	.9375	100	12.6 pounds	440.00
1	1.0000	75	11.5 pounds	512.00
1 1/16	1.0625	65	11.9 pounds	610.00
1 1/8	1.1250	50	10.9 pounds	700.00
1 3/16	1.1875	45	11.6 pounds	900.00
1 1/4	1.2500	40	11.9 pounds	1100.00
1 5/16	1.3125	30	10.4 pounds	1300.00
1 3/8	1.3750	25	10.1 pounds	1600.00
1 7/16	1.4375	25	11.4 pounds	1750.00
1 1/2	1.5000	20	10.3 pounds	1900.00

Sizes over 1 1/2" made to Order Promptly from the Mill.
Weight of Aluminum Balls are about 1/3 of the above weight for Brass.
Variations from above weights must be expected in practice.
Discounts will be given at your Request.
For Monel Metal Balls, see page 75.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

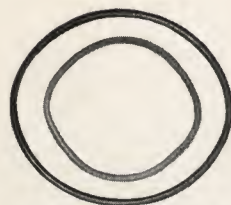


Corrugated Gaskets

**CORRUGATED
COPPER GASKETS**

Standard Sizes

List Price per Gasket



Asbestos Lined Gaskets

For Standard Flange Fittings To Fit Inside of Bolts			For Extra Heavy Flange Fittings To Fit Inside of Bolts		
Pipe Inches	Gasket Inches	List Price	Pipe Inches	Gasket Inches	List Price
2	2 x 4	\$.19	2	2 x 4 1/4	\$.22
2 1/2	2 1/2 x 4 3/4	.25	2 1/2	2 1/2 x 5	.29
3	3 x 5 1/4	.29	3	3 x 6	.43
3 1/2	3 1/2 x 6 1/4	.42	3 1/2	3 1/2 x 6 1/2	.47
4	4 x 6 3/4	.45	4	4 x 7	.52
4 1/2	4 1/2 x 7	.47	4 1/2	4 1/2 x 7 3/4	.62
5	5 x 7 3/4	.55	5	5 x 8 1/2	.74
6	6 x 8 3/4	.63	6	6 x 9 3/4	.92
7	7 x 10	.80	7	7 x 11	1.13
8	8 x 11	.89	8	8 x 12	1.25
9	9 x 12 1/2	1.18	9	9 x 13	1.38
10	10 x 13 1/4	1.19	10	10 x 14 1/4	1.62
12	12 x 16	1.76	12	12 x 16 3/4	2.15
14	14 x 17 3/4	1.87	14	14 x 19	2.59

CORRUGATED COPPER ASBESTOS LINED GASKETS

For Standard Flange Fittings To Fit Inside of Bolts			For Extra Heavy Flange Fittings To Fit Inside of Bolts		
Pipe Inches	Gasket Inches	List Price	Pipe Inches	Gasket Inches	List Price
2	2 1/4 x 4	\$.32	2	2 1/4 x 4 1/4	\$.36
2 1/2	2 3/4 x 4 3/4	.40	2 1/2	2 3/4 x 5	.45
3	3 1/4 x 5 1/4	.48	3	3 1/4 x 5 7/8	.54
3 1/2	3 3/4 x 6 1/4	.56	3 1/2	3 3/4 x 6 1/2	.63
4	4 1/4 x 6 5/8	.64	4	4 1/4 x 7	.72
4 1/2	4 3/4 x 6 7/8	.72	4 1/2	4 3/4 x 7 5/8	.81
5	5 1/4 x 7 5/8	.80	5	5 1/4 x 8 3/8	.90
6	6 1/4 x 8 5/8	.96	6	6 1/4 x 9 3/4	1.08
7	7 1/4 x 9 7/8	1.12	7	7 1/4 x 10 7/8	1.26
8	8 1/4 x 10 7/8	1.28	8	8 1/4 x 12	1.44
9	9 1/4 x 12 3/8	1.44	9	9 1/4 x 13	1.62
10	10 1/4 x 13 1/4	1.60	10	10 1/4 x 14 1/4	1.80
12	12 1/4 x 16	1.92	12	12 1/4 x 16 3/4	2.16
14	14 1/2 x 17 5/8	2.24	14	14 1/2 x 19	2.52

Gaskets made of other metals in above sizes or other dimensions for prompt shipment.
Monel metal and pure nickel gaskets made to your order promptly.
Prices quoted upon receipt of blueprint or specifications.
Discounts quoted upon application.



ANNEALED COPPER FLUE
FERRULES

Regular and Superheater Sizes

Prompt Shipment



Seamless Copper
Flue Ferrule

Size of Inside Diameter Width and Thickness Inches	Approx. Number per Pound	Extras Over Base Price for Quantity	
		Regular and Superheater Sizes	
		1000 pcs. or more	Base
1 3/4 x 5/8 x 1/32	26	500 to 1000 pieces.	Add 10¢ lb.
1 3/4 x 5/8 x 1/16	14	300 to 500 pieces.	Add 20¢ lb.
1 3/4 x 3/4 x 1/32	21	100 to 300 pieces.	Add 40¢ lb.
1 7/8 x 5/8 x 1/32	12	Less than 100 pieces.	Add 50¢ lb.
2 x 5/8 x 1/32	21		
2 x 3/4 x 1/32	17		
2 x 5/8 x 1/16	12		
2 x 5/8 x 3/32	8		
2 x 3/4 x 1/16	9		
2 x 3/4 x 3/32	7		
2 x 5/8 x 3/4	18		
2 1/4 x 5/8 x 1/32	20		
2 1/4 x 5/8 x 1/16	11		
2 1/2 x 5/8 x 1/32	18		
2 1/2 x 3/4 x 1/32	13		
2 1/2 x 5/8 x 1/16	9		
2 1/2 x 3/4 x 1/16	7		
3 x 7/8 x 1/16	6		
3 x 5/8 x 1/32	13		
3 x 3/4 x 1/32	12		
3 x 5/8 x 1/16	8		
3 x 5/8 x 3/32	6		
3 x 7/8 x 1/32	10		
3 x 3/4 x 1/16	6		
3 1/2 x 7/8 x 1/32	9		
3 1/2 x 7/8 x 1/16	5		
4 x 7/8 x 1/32	8		
4 x 7/8 x 1/16	5		
4 x 1 x 1/32	7		
4 x 1 x 1/16	4		

All sizes listed are regular;
Superheater Ferrules are over
4" Inside Diameter.

BASE PRICE QUOTED
UPON
APPLICATION

Other dimensions made to your
order for prompt mill shipment.

Boiler Tubes supplied to your
specifications promptly.

Variations from above weights must be expected in practice.
See pages 145 and 146 for Copper Tubes.



PHOSPHOR BRONZE BUSHINGS

12 Inch Lengths

Standard Sizes. Ready to Ship from Our Warehouse Stocks

Outside Diameter	Column headed "C" Dia. of Bore																													
	Column headed "W" Weight of each Bushing 12" long										Solid Rod																			
	CORED BUSHINGS																													
	C	W	C	W	C	W	C	W	C	W											C	W	C	W	C	W	C	W	C	W
1"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
1 1/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
1 1/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
1 3/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
1 1/2"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
1 3/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 1/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 1/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 3/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 1/2"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 3/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
2 7/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
3"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
3 1/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
3 1/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
3 1/2"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
3 3/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
4 1/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
4 1/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
4 3/8"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
5 1/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
5 1/2"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
5 3/4"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
6"	1 1/2"	2 1/2"	1 1/2"	3 1/4"	1 1/2"	5 1/2"	1 1/2"	6 1/2"	1 1/2"	8 1/2"	1 1/2"	11 1/2"	1 1/2"	12 1/2"	1 1/2"	13 1/2"	1 1/2"	14 1/2"	1 1/2"	15 1/2"										
Wall	1 1/4"	1 1/2"	1 3/8"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"										

We have patterns for Castings any other size and can make Special Diameters and lengths promptly.
 Bushings of any mixture made to order.
 Variations from above weights must be expected in practice.
 Prices quoted upon application.



DRAWN BRASS DOOR SADDLES

Plain or Corrugated

DRAWN BRASS WEATHERPROOF SILL MOLDINGS & ANGLES

Plain and Grooved Types

See pages 190 and 191

Prices and Details upon Request

BRASS AND BRONZE KICK PLATES

Push Plates—Window Guard Rails—Drawn Brass Threshold

Made to your Specifications

WROUGHT BRASS HINGES

Narrow—Middle—Broad—Desk Pattern

$\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", 3"

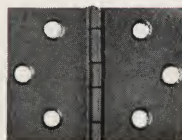
Also Made in other Alloys to your Order

Continuous Hinges to your Order

Price Quoted upon Request



Narrow Butt



Desk Butt



Continuous Hinge

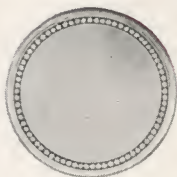
BRASS TAGS AND CHECKS

Factory—Coat Room—Baggage—Miners

All Styles and Sizes made Promptly to
your Requirements

Plain or Numbered

Estimates given upon receipt of
Specifications



Check



Tag

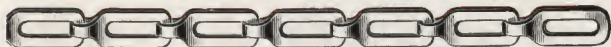
RED METAL (BRONZE) SASH CHAIN



BRASS AND COPPER CABLE CHAIN



BRASS SAFETY AND JACK CHAIN



Prices Quoted upon Application

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

DISCOUNT MULTIPLIERS

Secondary Discount	Primary Discount										
	40	45	50	55	60	65	70	75	80	85	90
2½	.585	.53625	.4875	.43875	.39	.34125	.2925	.24375	.195	.14625	.0975
5	.57	.5225	.475	.4275	.38	.3325	.285	.2375	.19	.1425	.095
5 2½	.55575	.50944	.46313	.41681	.3705	.32419	.27788	.23156	.18525	.13894	.09263
5 5	.5415	.49638	.45125	.40613	.361	.31588	.27075	.22563	.1805	.13538	.09025
7½	.555	.50875	.4625	.41625	.37	.32375	.2775	.23125	.185	.13875	.0925
7½ 2½	.54113	.49603	.45094	.40584	.36075	.31566	.27056	.22547	.18038	.13528	.09019
7½ 5	.52725	.48331	.43938	.39544	.3515	.30756	.26363	.21969	.17575	.13181	.08788
10	.54	.495	.45	.405	.36	.315	.27	.225	.18	.135	.09
10 2½	.5265	.48263	.43875	.39488	.351	.30713	.26325	.21938	.1755	.13163	.08775
10 5	.513	.47025	.4275	.38475	.342	.29925	.2565	.21375	.171	.12825	.0855
10 5 2½	.50018	.45849	.41681	.37513	.33345	.29177	.25009	.20841	.16673	.12504	.08336
10 7½	.4995	.45788	.41625	.37463	.333	.29138	.24975	.20813	.1665	.12488	.08325
10 7½ 5	.47453	.43499	.39544	.3559	.31635	.27681	.23726	.19772	.15818	.11864	.07909
10 10	.486	.4455	.405	.3645	.324	.2835	.243	.2025	.162	.1215	.081
10 10 2½	.47385	.43436	.39488	.35539	.3159	.27641	.23693	.19744	.15795	.11846	.07898
10 10 5	.4617	.42323	.38475	.34628	.3078	.26933	.23085	.19238	.1539	.11543	.07695
10 10 5 2½	.45016	.41264	.37513	.33762	.3001	.26259	.22508	.18757	.15005	.11254	.07503
10 10 10	.4374	.40095	.3645	.32805	.2916	.25515	.2187	.18225	.1458	.10935	.0729
10 10 10 2½	.4264	.3909	.3554	.3198	.2843	.2488	.2133	.1777	.1422	.1066	.0711
10 10 10 5	.4155	.3809	.3463	.3116	.2770	.2423	.2078	.1732	.1386	.1039	.0693
12½	.525	.48125	.4375	.39375	.35	.30625	.2625	.21875	.175	.13125	.0875
12½ 5	.49875	.45719	.41563	.37406	.3325	.29094	.24938	.20781	.16625	.12469	.08313
12½ 10	.4725	.43313	.39375	.35438	.315	.27563	.23625	.19688	.1575	.11813	.07875
12½ 10 5	.44888	.41147	.37406	.33666	.29925	.26185	.22444	.18704	.14963	.11222	.07481
12½ 10 10	.42525	.38982	.35438	.31894	.2835	.24807	.21263	.17719	.14175	.10632	.07088

EXAMPLE:—575 gross 1¼" x 8 Flat Head Wood Screws @ \$1.00 = \$575.00 less 50-10-2½%. By looking in the base column, Primary Discount, headed 50, opposite 10-2½ we find Decimal equivalent to be .43875 x \$575.00 = \$252.28 net amount.

TECHNICAL DATA

**TABLES OF WEIGHTS
AND
MEASURES**

INDEX

SPECIAL INFORMATION PERTAINING TO PHYSICAL PROPERTIES, ETC., IN GENERAL

Physical Properties

TENSILE STRENGTH OR TENACITY

When a body is resistant to forces that tend to pull it apart, the substance of which it is composed may be termed tenacious. Tenacity is a result of cohesion, meaning, a substance with this essential is one that has great cohesion. The tenacity of a substance is measured by the breaking weight per unit area of cross section.

DEMONSTRATION—Suspend a pail to a wire of a given diameter which is fastened overhead. Place known weights in the pail until the wire begins to stretch then slowly pour sand until the wire breaks. By taking the diameter of the wire and the weight of the total load, the tensile strength can be computed by dividing the weight by the area of cross section which can be determined by squaring half the diameter and multiplying by 3.1416.

For example:—if the diameter of the wire is $\frac{1}{16}$ " and it is broken by a load of 104 lbs.; the tensile strength is equal to

$$104 \div \frac{3.1416}{32 \times 32} = 33,938 \text{ lbs. per sq. inch.}$$

MALLEABILITY

The capacity of a substance to be extended or shaped by the process of beating with a hammer or by the pressure of rolls.

DUCTILITY

The ability of a substance to be permanently drawn into a wire or thread.

TEMPERATURE

The terms hot and cold are relative. Whether one body is hotter or colder than another depends upon whether it can impart heat to the second body, or receive heat from it. The condition of a body in this respect is called temperature.

MEASUREMENT OF TEMPERATURE

This is accomplished by means of a thermometer. The principle employed is that of the unequal expansion of bodies when heated.

THERMOMETERS

The scales in general use are the Centigrade, which makes the freezing point zero (0°) and its boiling point 100°; and the Fahrenheit which makes the freezing

point 32°, the boiling point 212° and puts the zero at 32° below freezing point. The Fahrenheit is the one in common use, but the Centigrade has been adopted for scientific work on account of its greater convenience.

CONVERSION OF TEMPERATURES

To change a temperature in degrees Centigrade to degrees Fahrenheit multiply the reading by 9/5 and add 32, as:

$$^{\circ}\text{C} \times \frac{9}{5} + 32 = ^{\circ}\text{F}$$

and for temperature in degrees Fahrenheit to degrees Centigrade subtract 32 from the reading and multiply by 5/9 as:

$$(^{\circ}\text{F} - 32) \times \frac{5}{9} = ^{\circ}\text{C}$$

	Tensile Strength	Yield Point	Elastic Limit	% Elong. in 2"	% Red. in Area
Annealed Metal					
Nickel Silver.....	60,000	.....	.....	40	.....
Wrought Iron.....	42-52,000	23-34,000	21-26,000	42	43
Brass.....	45,000	.....	.....	50	60
Copper.....	30-40,000	.....	.....	40-60	.....
Duralumin.....	25-35,000	7-10,000	.....	12	22
Aluminum.....	12-15,000	8- 9,000	.....	15-30	30-40
Lead.....	2,800	.....	300	.....	.....
Hard Metal					
Nickel Silver.....	95-110,000	.....	.....	1- 2	.....
Brass.....	85,000	.....	.....	4-15	45
Medium Steel.....	60- 70,000	37-44,000	30-35,000	35	62
Copper.....	50- 70,000	.....	.....	2- 4	.....
Duralumin.....	55- 63,000	30-40,000	.....	18-25	.....
Aluminum.....	36- 46,000	.....	.....	1- 5	.....

Hardness

This is a relative property; there is no such thing as an absolute hard or soft body. A body that can be made to scratch or wear another is the harder of the two. Glass is harder than wax but softer than a diamond. The diamond is the hardest known natural substance and the dust is used to cut other bodies.

The hardness of metals is ordinarily expressed in Brinnell, Shore and Rockwell hardness numbers, the former being used the most. None of these, however, satisfactorily determine the hardness and therefore no exact method for converting from one value to another has been devised. The following table represents the metals according to Brinnell:

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Annealed Metal	500 kg load	3000 kg load
Wrought Iron.....	88
18% Nickel Silver.....	77
Phosphor Bronze.....	60	.....
Brass.....	52	.....
Duralumin.....	45-55	.....
Copper.....	30-40	.....
Aluminum.....	32-33	.....
Lead.....	5.3	.....

Hard Metal

Phosphor Bronze.....	180	.....
Nickel Silver.....	158	.....
Brass.....	153	.....
Muntz Metal.....	116	.....
Duralumin.....	90-105	.....
Copper.....	100	.....
Aluminum.....	62-70	.....

The hardness of metals from an engineering standpoint is very important, and it is unfortunate that it is a difficult property to measure. For many purposes the resistance to permanent change (indicated by the elastic limit) is a fair basis for comparing hardness. Neither this nor the indentation tests, however, supply accurate information regarding the resistance of metals to wear or abrasion.

Hardness is a fairly good measure of the resistance of metals to the wearing effect of steam, oil and water through orifice plates. It determines the abrasion resistance to mixtures of salt and water as experienced in salt plant work, and to scratching and denting to which restaurant equipment is normally subjected and scratching which occurs in handling sheet metal.

Hardness is a determining factor in machining quality; the hardest of metals tend to cause excessive tool wear and the softest tend to drag under the tool.

Effect of Elevated Temperatures

Metals in high temperature applications may be effected in several ways—they may lose strength or ductility, they may oxidize, sulfidize, or become embrittled through some other agency. It is necessary to differentiate between items where strength is the important factor and where oxidization, etc., is the important factor. The following table gives the tensile strength of individual metal specimens at certain high temperatures:

Wrought Metal	600 F.	800 F.	1000 F.
Manganese Bronze.....	.....	39,000	12,000
Copper.....	28,000	18,000	10,000
Tin Bronze.....	25,000	18,000	7,000
Muntz Metal.....	31,000	12,000	5,000
Aluminum.....	.....	9,000	1,200

The data given are on tensile strength, which is the most important property on which information is available. Figures on ductility are not given because they are relatively less important and no information is available on elastic limit which would have the greatest significance.

Rigidity

Rigidity is expressed by the modulus of elasticity, which is the ratio between applied force and the elastic deformation due to this force. The modulus is obtained in ordinary static tension tests; the torsional modulus, a modification of the former, is obtained in torsional tensile tests.

Tungsten.....	60,000,000	Brass.....	13,800,000
Molybdenum.....	50,200,000	Zinc.....	13,700,000
Steel.....	30,000,000	Cast Iron.....	12,000,000
Wrought Iron.....	25,000,000	Duralumin.....	10,500,000
Copper.....	15-17,000,000	Aluminum.....	10,400,000
Manganese Bronze....	16,000,000	Tin.....	4,500,000
Phosphor Bronze.....	16,000,000	Lead.....	700,000

A rubber band has practically no rigidity, since under practically no load it will deform to a great extent and still return to its original condition when the load is released. An obvious example, in metals of the importance of rigidity is motor-boat propeller shafting; a rigid shaft has less tendency to whip and vibrate when running at high speed than a less rigid shaft. Another case is in springs of various kinds, where the elastic limit (in torsion) determines the maximum load, the spring will carry and the modulus (in torsion) determines the deflection of the spring under that load. The modulus, in other words, is a measure of the tendency to bend or stretch in any application where the stress which is applied does not exceed the elastic limit.

Toughness

Toughness, which is virtually the converse of brittleness, depends on strength, rigidity, and ductility. Notched-bar impact tests probably best express the toughness of metals; in these measured is the energy in foot-pounds required to break a notched-bar specimen by a blow.

Mild Steel	114	IZOD
Wrought Iron	58.4	IZOD
Copper Bars	35	CHARPY
Phosphor Bronze	30.6	IZOD
Brass	27.9	IZOD
Nickel Silver	14.6; 16.8	IZOD
Duralumin	10.6; 16.3	IZOD
Cast Iron	1.	IZOD

The significance of toughness in engineering uses is great, although it is difficult to isolate it as a property. It is a function of strength and ductility called into play to resist shock. When a marine propeller, for instance, strikes a floating timber both the propeller and the shaft are subjected to shock.

Coefficient of Linear Expansion

The following values, coefficients of linear expansion per degree Centigrade, apply for the most part to a temperature range of 0°—100° C. (32°—212° F.)

Mercury	60 x 10 ⁻⁶	Nickel Silver	18.3
Cadmium	30.6	Bronze	18
Zinc	29	Copper	16.8 x 10 ⁻⁶
Lead	27	Steel	13.1
Aluminum	24	Cast Iron	10.4
Tin	22	Platinum	8.8
Brass	18.9	Glass	8.4
Silver	18.8	Chromium	8.1

Specific Gravity

The density of a substance in grams per cubic centimeter equals the specific gravity. The following table has been prepared by our Technical Department from numerous observations:

Platinum	21.5	Iron	7.09
Lead	11.38	Wrought Iron	7.70
Silver	10.51	Tin	7.35
Solder 50-50	9.86	Cast Iron	7.22
Copper	8.85	Zinc	7.14
Nickel Silver	8.75	Chromium	6.92
Tin Bronze	8.66	Duralumin	2.9
Brass 60-40	8.46	Aluminum	2.67

Thermal Conductivity

It is a common mistake to believe that the thermal conductivity of metals is an empirical measure of the rate of heat flow through the metal. Actually the rate of heat flow through a sheet or tube wall of any metal is determined primarily by the resistance to this flow afforded by the thin fluid or gaseous surface films on both sides and only to a minor extent by the conductivity of the metal itself. This fact has been demonstrated in the case of condenser tubes, evaporators, jacketed kettles, heat exchangers and other similar types of chemical and heating equipment.

Only in the case of thick sections does the rate of heat flow through metals become at all dependent on the inherent property of metals, of which thermal conductivity is an expression. The end of a saucepan handle, for instance, would heat more quickly if made of metal of higher thermal conductivity.

Thermal conductivity referred to copper as 100:

Silver	110	Nickel	15.5
Copper	100	Cast Iron	12.6
Aluminum	52.5	Lead	9.0
Brass	28.4	Nickel Silver	7.6
Wrought Iron	15.7	Monel Metal	6.6

Melting Points

The change from a solid to a liquid as a result of the application of heat is called fusion, or melting. The temperature at which a solid melts is called its melting point. The laws of fusion are as follows: 1. Every solid having a crystalline structure begins to melt at a certain fixed temperature that is always the same for that substance if the pressure is constant. 2. The temperature of a melting solid remains unchanged from the time melting begins until the body is entirely melted.

A change of physical condition from a solid to a liquid form in metals can be brought about if only the proper temperatures can be produced. The following is a list from the observations of our Technical Department:

Tin	232 Cent.	Commercial Bronze	1000 Cent.
Lead	326 Cent.	Phosphor Bronze	1050 Cent.
Zinc	419 Cent.	Nickel Silver 18%	1055 Cent.
Aluminum	657 Cent.	Gold	1065 Cent.
Naval Bronze	885 Cent.	Copper (pure)	1084 Cent.
Tobin Bronze	885 Cent.	Monel Metal (rolled)	1350 Cent.
High Brass	900 Cent.	Nickel	1460 Cent.
Silver	961 Cent.	Iron	1600 Cent.
Low Brass	1000 Cent.	Platinum	1780 Cent.

Physical Properties of Copper
ELECTRICAL

Standard Resistivity Annealed Copper at 20°C.:			
Microhms—cm.....	1.7241	Ohms (metergram).....	0.15328
Microhms—inch.....	0.67879	Ohms (mile-pound).....	875.20
Resistivity Temp. Constant per °C.:			
Microhms—cm.....	0.00681	Ohms (metergram).....	0.000597
Microhms—inch.....	0.00268	Ohms (mile-pound).....	3.41
Conductivity:			
International Annealed Copper Standard being 100% at 20° C.			
Commercial pure electrolytic annealed copper about 100.3%.			

TENSILE STRENGTH—COPPER WIRE:

Diameter Inches	Hard Drawn		Medium Hard		Soft or Annealed	
	T. S. Lbs. per sq. in.	Elong. in 10" %	T. S. Lbs. per sq. in.	Elong. in 10" %	T. S. Lbs. per sq. in.	Elong. in 10" %
0.460 to 0.290	49,000 to 56,000	3.75 to 2.18	42,000 to 53,000	3.75 to 2.75	36,000	35
0.289 to 0.103	56,100 to 64,800	2.17 to 1.00	46,000 to 57,500	2.75 to 1.04	37,000	30
0.102 to 0.021	.....	.....	.....	.....	38,500	25
0.020 to 0.003	.....	.....	.....	.....	40,000	20
0.102 to 0.040	64,900 to 67,000	1.00 to 0.85	50,500 to 60,000	1.04 to 0.88	.....	.....

GENERAL AND THERMAL

Density annealed Copper at 20° C.	8.89
Melting Point.....	1981.4° F.
Melting Point.....	1083.0° C
Boiling point at 760 mm.....	2310° C.
Heat of vaporization about.....	75,000 Calories
Thermal conductivity (Silver =100).....	91.6
Latent heat of fusion.....	43.3 Calories
Specific heat at 25° C.....	0.0917
Specific heat at t° C. =.....	0.0917 + 0.000048 (t—25)
Vapour tension at 1120° C.....	0.28 mm.
Heat in solid at melting point.....	118.7 Calories
Heat in liquid at melting point.....	162.0 Calories
Coef. of linear expansion per °C. =.....	0.000017
Coef. of linear expansion per °F. =.....	0.0000095
Weight, rolled copper, lbs. per cu. in. =.....	0.3214
Weight, cast copper, lbs. per cu. in. =.....	0.31
Shrinkage about 0.1875" per foot.	

MECHANICAL

Modulus of elasticity (Electrolytic Copper at 20° to 100° C.):	Lbs. per sq. in.
Drawn.....	17,600,000
Annealed.....	18,300,000
Tension (pure copper worked and then annealed):	
Ultimate tensile strength.....	35,000 ± 5,000 lbs. per sq. in.
Elastic or proportional limit.....	Not determinable
Elongation in 2".....	40 to 60%
Reduction of Area.....	40 to 60%
	Lbs. per sq. in.
Tensile strength No. 0 wire annealed.....	32,000
Tensile strength of No. 0 hard drawn wire.....	54,500
Elastic Limit No. 0 wire hard drawn.....	30,000
Modulus of Elasticity:	
No. 0 wire, hard drawn.....	16,000,000
Approximate tensile strength:	
Pounds per square inch for any given diameter (D") of hard drawn wire.....	70,000—45,000 D
Approximate elongation at fracture of above.....	4√D

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Copper	Ultimate Strength Lbs. per sq. in.
Cast.....	22-36,000
Forged.....	34,000
Bolt.....	36,000
Sheet.....	36,000
Wire.....	62,000

Compression:
Copper of good quality does not fracture in compression but flattens out.

Torsion:
$$d' = \sqrt[3]{\frac{5.1 FL}{S'}}$$

d' = diameter in inches.
F = torsional force in pounds.
L = lever arm inches.
S' = from 15,000 to 30,000 lbs. per square inch.

Shear test:
The shearing resistance of copper may be taken as equal to the ultimate strength in tension and subject to the same variations, i. e.:

	Lbs. per sq. in.
Cast Copper.....	22-36,000
Copper Sheet.....	36,000
Copper Forged.....	34,000

Transverse bending test:
Modulus of rupture, 20,000 to 40,000 lbs. per square inch.

Hardness:
Mohrs mineralogic scale..... 2.5—3
Martens sclerometer
10 g gave a scratch of 0.014 to 0.016 mm. 17 g gave a scratch of 0.022 to 0.027 mm.
Scleroscope (universal hammer):
Annealed Copper..... 6 to 7
Hard Copper (cold reduction 66%)..... 22 to 24
Brinnell:
Annealed or Cast Copper (500 kg. load 10 mm. ball)..... 35±5
When hardened by cold working, the above value may run as high as..... 100

Per Cent Cold Reduction of Section	Brinnell Hardness Numeral—500 Kg.		Tensile Strength Lbs. per sq. in.	Elonga- tion in 11 cm. Per Cent	Per Cent Cold Re- duction of Section	Brinnell Hardness Numeral—500 Kg.		Tensile Strength Lbs. per sq. in.	Elonga- tion in 11 cm. Per Cent
	10 mm. Ball	5 mm. Ball				10 mm. Ball	5 mm. Ball		
0 (soft annealed)	42	50	33,600	46	30	86	90	45,000	5
10	70	74	36,000	24	40	94	92	47,800	4.5
20	81	81	40,000	13	50	96	95	52,600	4.2

TENSILE STRENGTH—HIGH TEMPERATURES:

Tem- perature		Pure Copper		Copper—Ben- gough's Figures		Tem- perature		Pure Copper		Copper—Ben- gough's Figures	
°C.	°F.	T. S. Lbs. per sq.in.	Elonga- tion %	T. S. Lbs. per sq.in.	Elonga- tion 2" %	°C.	°F.	T. S. Lbs. per sq.in.	Elonga- tion %	T. S. Lbs. per sq.in.	Elonga- tion 2" %
17	83			32,600	32.5	480	896			15,000	27.5
20	68	34,000	43			500	932	14,000	24		
100	212	30,000	38			540	1004			10,200	27.0
200	392	27,500	37			620	1148			5,200	27.0
252	486			25,400	28.0	675	1215			2,600	28.4
300	572	24,000	36			736	1357			2,400	36.0
330	627			22,000	29.6	840	1544			1,920	61.0
400	752	19,000	20			920	1770			1,000	69.0
420	788			19,000	28.3	1010	1850			320	38.0

NOTE

The foregoing information has been compiled from reliable sources and assembled in this form for the convenience of the engineering profession.
The extent to which impurities have been removed from Copper, together with the changes in physical structure imparted by working the metal, materially affects its properties.

The Copper and Brass Research Association, 25 Broadway, New York, N. Y., would appreciate the opportunity to co-operate with you at any time in working out any of your problems in terms of Copper, Brass, Bronze or other Copper products.

Pickling Solutions for Copper and Copper Alloys

CAUTION

The following chemicals for pickling are dangerous and very corrosive and if one is not familiar with them and their action they should not be used. These mixtures are to rapidly remove scale and the tarnished surface of the metal so as to develop the natural fine color of the metal itself.

SULPHURIC ACID PICKLE:

Add $\frac{1}{2}$ gallon vitriol (75% H_2SO_4 , sp. gr. 1.7) to 100 gallons of water.

SULPHURIC-CHROMIC ACID PICKLE:

7 lbs. potassium or sodium bichromate should be dissolved in 10 gallons of water; then add 1 gallon (17 lbs.) vitriol (75% H_2SO_4 , sp. gr. 1.7).

NITRIC ACID BRIGHT DIP:

200 parts by weight of 52% nitric acid (sp. gr. 1.33).
1 to 2 parts of common salt.

NITRIC-SULPHURIC ACID BRIGHT DIP:

100 parts by weight of strong sulphuric acid (sp. gr. 1.84).

75 parts by weight of strong nitric acid (sp. gr. 1.38).

Add the sulphuric to the nitric acid in small quantities at a time, stirring continually.

Allow to cool before using. A little common salt added to the bath before using will prove advantageous.

For bright dipping the article should be almost dry. Dip in the acid mixture for only a moment and then wash quickly in plenty of clean water. A matt finish results if the dipping is too slow or if the bath is warm. A matt finish may be bright finished by re-dipping in a mixture of:

6 parts of hydrochloric acid
1 part of nitric acid
2 parts water

To prevent tarnishing of bright dipped articles give them a final dip after thoroughly washing in water in a weak solution of argol or tartaric acid.

COLORING

COPPER: Before coloring it is essential that the metal be freed of oil that was used in the rolling operations. Due to the fine grain structure of the metal the oil or grease has been rolled into the pores and cleaning can not be carried out too carefully.

TO CLEAN COPPER: Prepare a strong soda or potash lye solution by adding about a pound of lye to a pail of boiling water. Dip the metal or apply this solution with a brush, scrubbing well. Then rise or wash with plain hot water and finally with cold water.

COLORING: Copper, when exposed to the atmosphere, will develop verdigris (green) after a time, due to natural phenomena, especially along the sea-coast.

To quickly develop this beautiful green "patina" that is so striking and permanent, use one of the following methods:

- (a) Use a solution of 1/2 lb. of salt to 2 gallons of water. Apply to copper surface with a brush and allow to dry. Sufficient applications at one or two day intervals should be made until the desired effect is produced.
- (b) Dissolve thoroughly 1 lb. of powdered sal ammoniac in about 5 gallons of water and let stand 24 hours. Apply to copper with a brush, covering every part; let stand one day and then sprinkle surface with clean water.
- (c) This formula, while producing excellent results, is not recommended for general use, as it requires careful handling.

Dissolve 10 parts copper in 25 parts by weight of strong nitric acid and then add 150 parts of 20% acetic acid and five parts of ammonium chloride. The resulting solution shall be diluted with about three parts water and applied to surface with a brush and allowed to dry. Sufficient applications at one or two day intervals shall be made until desired effect is produced.

BROWN—REDDISH BRONZE—BLUE BLACK TONES ON COPPER

If a dark copper or brown tone is desired on copper exposed to the atmosphere it may be obtained by rubbing the copper with cotton waste soaked in boiled linseed oil. This coating will gradually turn the copper a dark brown and will adhere to the copper surface for a long time.

Another method more suitable for small articles is to thoroughly clean the surface and then use a solution of

Water 160° F.....	1 gallon
Sulphuret of potassium or polysulphide.....	1/8 to 1/4 oz.
Ammonia water 26%.....	10 drops

or preferably purchase a similar solution made up.

Tones develop on copper in the following order—brownish, reddish bronze, bluish black and black. Remove when desired tone is reached and wash thoroughly.

Scouring with pumice and water or oil helps to bring out certain tones. Scratch brushing with a brass wire scratch brush is another means of developing additional tones.

ANTIQUÉ GREEN OXIDIZED EFFECT

After cleaning use solution:

Hot water 160° F.....	3 quarts
Muriatic Acid.....	1 quart
Verdigris powder.....	3 pounds
Copper carbonate.....	8 ounces
White powdered arsenic.....	8 ounces
Sal Ammoniac.....	3 pounds

Apply lightly to copper. Atmosphere will deepen the green color.

HARDWARE GREEN FINISH ON BRASS

Produce a fine emery finish, clean thoroughly and immerse in following solution until brass develops a greenish color:

Water 180° F.....	1 gallon
Hyposulphite of soda.....	8 ounces
Nitrate of iron.....	2 ounces

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When green tone develops wash in water and touch up high lights, using tampico brush or wheel and a little fine brimstone and water.

VERDE ANTIQUE FINISH

Copper or Brass

The following is a method to color and produce a patina or verde antique effect. The green bronze antique tones are the result of a combination of chemicals, pigments, and artistic skill. The finish is quickly obtained and may be use on brass or copper. It can be stippled on to a plain surface, or dipped on background work where the high parts are to be relieved, and is adapted for large surfaces. The green will work out over the metal.

The solution is as follows:

Nitrate of Copper.....	4 ounces
Sal Ammoniac.....	4 ounces
Calcium Chloride.....	4 ounces
Water.....	1 gallon

In stippling it on to large surfaces, to prevent runs, a paste can be made by mixing a little carbonate of copper with this liquid. To stipple, it is best to use a stiff bristle brush (rubberset), as an iron binding on a brush is attacked by the acid in the solution and brings out spots of rust in the finish.

The green will appear in a short time and should be lacquered.

This will give a dead finish to the green and will prevent a gloss which often gives to the verde antique finish the appearance of green paint. If the wax effect is desired, the waxing can be done with beeswax over lacquer, either by using it on a tampico wheel brush run at slow speed, or by cutting paraffine wax in Venice turpentine to a liquid, and then applying it with a brush.

BLUE OR BLACK ON BRASS

Blue or black on brass is obtained, depending upon the time the articles are immersed, when using the following solution on cleaned brass:

Water 180° F.....	1 gallon
Hyposulphite of soda.....	8 ounces
Lead acetate.....	2 to 4 ounces

If black only is desired, use the following solution after thoroughly mixing:

Dissolve Copper Carbonate.....	8 ounces
In Ammonia water 26%.....	1 pint
Add to water 120° F.....	1 gallon
Add sal soda crystal.....	4 ounces

Blackening brass:

68 parts of ammonia (sp. gravity 0.91).

Add 10 parts of basic copper carbonate.

Shake or stir frequently.

After twenty-four hours some basic carbonate should remain in the solution. If not, add more and shake and stir.

If some basic copper carbonate remains undissolved, add 25 parts of water.

After mixing thoroughly, the solution is ready for use.

CALCULATIONS

To Find the Capacity of a Tank in Gallons.

1. All measurements must be reduced to inches.

For rectangular tanks, multiply the length by the width, by the depth.

For cylindrical tanks, multiply the length by the square of the diameter by .7854.

For elliptical section tanks, multiply the length by the short diameter by the long diameter by .0339.

2. Divide the result of any of the above calculations by 231, which is the number of cubic inches in a gallon; the result is the capacity of the tank in gallons.

Relative to a Circle.

To find Circumference—Multiply the diameter by 3.1416; or, divide the diameter by 0.3183.

To find Diameter—Multiply the circumference by 0.3183; or, divide circumference by 3.1416.

To find Radius—Multiply the circumference by 0.15915; or, divide circumference by 6.28318; or, divide diameter by 2.

To find the Side of a Square to be inscribed in a Circle—Multiply diameter by 0.7071; or, multiply the circumference by 0.2251; or, divide the circumference by 4.4428.

To find the Side of a Square to equal the Area of a Circle—Multiply the diameter by 0.8862; or, divide diameter by 1.1284; or, multiply the circumference by 0.2821; or, divide circumference by 3.545.

To find the Area of a Circle—Multiply the circumference by one-quarter of the diameter; or, multiply the square of the diameter by 0.7854; or, multiply the square of the circumference by 0.7958; or, multiply the square of one-half the diameter by 3.1416.

Relative to a Square.

A side multiplied by 1.412 equals the diameter of a circle which will circumscribe the given square.

A side multiplied by 4.443 equals the circumference of its circumscribing circle.

A side multiplied by 1.1284 equals the diameter of a circle equal in area to that given square.

A side multiplied by 3.545 equals circumference of an equal circle.

To find the Area of an Ellipse—Multiply the product of its axis by .7854; or, multiply the product of its semi-axis by 3.14159.

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Relative to Other Geometrical Forms—

To find:

Contents of a cylinder = area of end X length.

Contents of a wedge = area of triangular base X altitude.

Surface of a cylinder = length X circumference plus area of both ends.

Surface of a sphere = diameter squared X 3.1416; or, diameter X circumference.

Contents of a sphere = diameter cubed X 0.5236.

Contents of a pyramid or cone, right or oblique, regular or irregular, = area of base X one-third of the altitude.

Area of a triangle = base X one-half the altitude.

Area of a parallelogram = base X altitude.

Area of a trapezoid = altitude X one-half the sum of parallel sides.

CAPACITY OF TANKS IN GALLONS

VARIOUS DEPTHS AND DIAMETERS

Diameter Inches	DEPTH OF TANKS IN INCHES						
	12" deep Gals.	24" deep Gals.	30" deep Gals.	36" deep Gals.	42" deep Gals.	48" deep Gals.	60" deep Gals.
6	1.4	2.9	3.6	4.3	5.1	5.8	7.3
7	1.9	3.8	4.7	5.7	6.6	7.6	9.5
8	2.6	5.2	6.5	7.8	9.1	10.4	13.0
9	3.3	6.6	8.2	9.9	11.5	13.2	16.5
10	4.1	8.1	10.2	12.2	14.2	16.3	20.4
11	4.5	9.0	11.2	13.5	15.7	18.0	22.5
12	5.9	11.7	14.6	17.6	20.5	23.4	29.3
13	6.9	13.7	17.2	20.6	24.1	27.5	34.4
14	7.9	15.9	19.9	23.9	27.9	31.9	39.9
15	9.1	18.3	22.9	27.5	32.1	36.7	45.9
16	10.4	20.8	26.1	31.3	36.5	41.7	52.2
17	11.7	23.5	29.4	35.3	41.2	47.1	58.9
18	13.2	26.4	33.0	39.6	46.2	52.8	66.0
19	14.7	29.4	36.8	44.1	51.5	58.8	73.6
20	16.3	32.4	40.6	48.7	56.9	65.1	81.6
21	17.9	35.9	44.9	53.9	62.9	71.9	89.9
22	19.7	39.4	49.3	59.2	69.0	78.9	98.7
23	21.5	43.1	53.9	64.7	75.5	86.3	107.9

24" diameter and larger continued on next page.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

CAPACITY OF TANKS IN GALLONS—Continued

Diameter Inches	DEPTHS OF TANKS IN INCHES						
	12 In. deep Gals.	24 In. deep Gals.	30 In. deep Gals.	36 In. deep Gals.	42 In. deep Gals.	48 In. deep Gals.	60 In. deep Gals.
24	23	47	58	70	82	94	117
25	25	51	63	76	89	102	127
26	27	55	68	82	96	110	137
27	29	59	74	89	104	119	148
28	32	65	81	98	114	131	163
29	34	68	85	102	119	137	171
30	36	73	91	110	128	147	183
31	39	78	98	117	137	157	196
32	41	83	104	125	146	167	208
33	44	89	111	133	155	178	222
34	47	94	117	141	164	188	235
35	50	100	125	150	175	200	250
36	52	105	132	158	185	211	264
37	55	111	139	167	195	223	279
38	59	118	147	177	206	236	295
39	62	124	155	186	217	248	310
40	65	130	163	195	228	261	326
41	68	137	171	205	239	274	342
42	73	146	183	219	255	292	365
43	75	151	189	226	264	302	377
44	79	158	198	237	276	316	395
45	82	165	206	247	288	330	412
46	86	172	216	258	301	345	431
47	90	180	225	270	315	360	450
48	94	188	235	282	329	376	470
49	98	196	245	294	343	392	490
50	102	204	255	306	357	408	510
51	103	206	257	309	360	412	515
52	110	220	275	330	385	440	550
53	114	229	286	343	400	458	572
54	119	238	297	357	416	476	595
55	123	247	308	370	432	494	617
56	128	256	320	384	448	512	640
57	132	265	331	397	463	530	662
58	137	274	343	411	480	549	686
59	142	284	355	426	497	568	710
60	146	294	367	440	514	587	734

The capacity of tanks, as figured above is theoretical and variations must be expected. In cases where the fractional part of a gallon ran into two figures or more we used only the first figure of the fraction in order to give a working margin of safety.

TABLE OF AREAS

Areas of Squares and Circles—Also Circumferences of Circles

Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches	Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches	Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches
				2	4.0000	3.1416	6.2832	4	16.000	12.566	12.566
$\frac{1}{16}$	.0039	.0031	.1964	$2\frac{1}{16}$	4.2539	3.3410	6.4796	$4\frac{1}{16}$	16.504	12.962	12.763
$\frac{1}{8}$	.0156	.0123	.3927	$2\frac{1}{8}$	4.5156	3.5466	6.6759	$4\frac{1}{8}$	17.016	13.364	12.959
$\frac{3}{16}$	.0352	.0276	.5891	$2\frac{3}{16}$	4.7852	3.7583	6.8723	$4\frac{3}{16}$	17.535	13.772	13.155
$\frac{1}{4}$	.0625	.0491	.7854	$2\frac{1}{4}$	5.0625	3.9761	7.0686	$4\frac{1}{4}$	18.063	14.186	13.352
$\frac{5}{16}$	.0977	.0767	.9818	$2\frac{5}{16}$	5.3477	4.2000	7.2650	$4\frac{5}{16}$	18.598	14.607	13.548
$\frac{3}{8}$	.1406	.1104	1.1781	$2\frac{3}{8}$	5.6406	4.4301	7.4613	$4\frac{3}{8}$	19.141	15.033	13.745
$\frac{7}{16}$	.1914	.1503	1.3745	$2\frac{7}{16}$	5.9414	4.6664	7.6577	$4\frac{7}{16}$	19.691	15.466	13.941
$\frac{1}{2}$	.2500	.1964	1.5708	$2\frac{1}{2}$	6.2500	4.9088	7.8540	$4\frac{1}{2}$	20.250	15.904	14.137
$\frac{9}{16}$	.3164	.2485	1.7672	$2\frac{9}{16}$	6.5664	5.1573	8.0504	$4\frac{9}{16}$	20.816	16.349	14.334
$\frac{5}{8}$	.3906	.3068	1.9635	$2\frac{5}{8}$	6.8906	5.4119	8.2467	$4\frac{5}{8}$	21.391	16.800	14.530
$\frac{11}{16}$	.4727	.3712	2.1599	$2\frac{11}{16}$	7.2227	5.6727	8.4431	$4\frac{11}{16}$	21.973	17.257	14.726
$\frac{3}{4}$	.5625	.4418	2.3562	$2\frac{3}{4}$	7.5625	5.9396	8.6394	$4\frac{3}{4}$	22.563	17.721	14.923
$\frac{7}{8}$	.6602	.5185	2.5526	$2\frac{7}{8}$	7.9102	6.2126	8.8358	$4\frac{7}{8}$	23.160	18.190	15.119
$\frac{15}{16}$	.7656	.6013	2.7489	$2\frac{15}{16}$	8.2656	6.4918	9.0321	$4\frac{15}{16}$	23.766	18.666	15.315
	.8789	.6903	2.9453	$2\frac{15}{16}$	8.6289	6.7771	9.2285	$4\frac{15}{16}$	24.379	19.147	15.512
1	1.0000	.7854	3.1416	3	9.0000	7.0686	9.4248	5	25.000	19.635	15.708
$1\frac{1}{16}$	1.1289	.8866	3.3380	$3\frac{1}{16}$	9.3789	7.3662	9.6212	$5\frac{1}{16}$	25.629	20.129	15.904
$1\frac{1}{8}$	1.2656	.9940	3.5343	$3\frac{1}{8}$	9.7656	7.6699	9.8175	$5\frac{1}{8}$	26.266	20.629	16.101
$1\frac{1}{4}$	1.4102	1.1075	3.7307	$3\frac{1}{4}$	10.160	7.9798	10.014	$5\frac{1}{4}$	26.910	21.135	16.297
$1\frac{1}{8}$	1.5625	1.2272	3.9270	$3\frac{1}{8}$	10.563	8.2958	10.210	$5\frac{1}{8}$	27.563	21.648	16.493
$1\frac{5}{16}$	1.7227	1.3530	4.1234	$3\frac{5}{16}$	10.973	8.6179	10.407	$5\frac{5}{16}$	28.223	22.166	16.690
$1\frac{3}{8}$	1.8906	1.4849	4.3197	$3\frac{3}{8}$	11.391	8.9462	10.603	$5\frac{3}{8}$	28.891	22.691	16.886
$1\frac{7}{16}$	2.0664	1.6230	4.5161	$3\frac{7}{16}$	11.816	9.2806	10.799	$5\frac{7}{16}$	29.566	23.221	17.082
$1\frac{1}{2}$	2.2500	1.7672	4.7124	$3\frac{1}{2}$	12.250	9.6212	10.996	$5\frac{1}{2}$	30.250	23.758	17.279
$1\frac{9}{16}$	2.4414	1.9175	4.9088	$3\frac{9}{16}$	12.691	9.9678	11.192	$5\frac{9}{16}$	30.931	24.301	17.475
$1\frac{5}{8}$	2.6406	2.0739	5.1051	$3\frac{5}{8}$	13.141	10.321	11.388	$5\frac{5}{8}$	31.641	24.851	17.672
$1\frac{11}{16}$	2.8477	2.2365	5.3015	$3\frac{11}{16}$	13.598	10.680	11.585	$5\frac{11}{16}$	32.348	25.406	17.868
$1\frac{3}{4}$	3.0625	2.4053	5.4978	$3\frac{3}{4}$	14.063	11.045	11.781	$5\frac{3}{4}$	33.063	25.967	18.064
$1\frac{13}{16}$	3.2852	2.5802	5.6942	$3\frac{13}{16}$	14.535	11.416	11.977	$5\frac{13}{16}$	33.785	26.535	18.261
$1\frac{7}{8}$	3.5156	2.7612	5.8905	$3\frac{7}{8}$	15.016	11.793	12.174	$5\frac{7}{8}$	34.516	27.109	18.457
$1\frac{15}{16}$	3.7539	2.9483	6.0869	$3\frac{15}{16}$	15.504	12.177	12.370	$5\frac{15}{16}$	35.254	27.688	18.653

TABLE OF AREAS

(Continued)

Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches	Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches	Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circum- ference of ○ in Inches
6	36.000	28.274	18.850	8	64.000	50.266	25.133	10	100.00	78.540	31.416
6 $\frac{1}{16}$	36.754	28.867	19.046	8 $\frac{1}{16}$	65.004	51.054	25.329	10 $\frac{1}{16}$	101.25	79.525	31.612
6 $\frac{1}{8}$	37.516	29.465	19.242	8 $\frac{1}{8}$	66.016	51.849	25.526	10 $\frac{1}{8}$	102.52	80.516	31.809
6 $\frac{3}{16}$	38.285	30.069	19.439	8 $\frac{3}{16}$	67.035	52.649	25.722	10 $\frac{3}{16}$	103.79	81.513	32.005
6 $\frac{1}{4}$	39.063	30.680	19.635	8 $\frac{1}{4}$	68.063	53.456	25.918	10 $\frac{1}{4}$	105.06	82.516	32.201
6 $\frac{5}{16}$	39.848	31.296	19.831	8 $\frac{5}{16}$	69.098	54.269	26.115	10 $\frac{5}{16}$	106.35	83.525	32.398
6 $\frac{3}{8}$	40.641	31.919	20.028	8 $\frac{3}{8}$	70.141	55.088	26.311	10 $\frac{3}{8}$	107.64	84.541	32.594
6 $\frac{7}{16}$	41.441	32.548	20.224	8 $\frac{7}{16}$	71.191	55.914	26.507	10 $\frac{7}{16}$	108.94	85.563	32.790
6 $\frac{1}{2}$	42.250	33.183	20.420	8 $\frac{1}{2}$	72.250	56.745	26.704	10 $\frac{1}{2}$	110.25	86.590	32.987
6 $\frac{9}{16}$	43.066	33.824	20.617	8 $\frac{9}{16}$	73.316	57.583	26.900	10 $\frac{9}{16}$	111.57	87.624	33.183
6 $\frac{5}{8}$	43.891	34.472	20.813	8 $\frac{5}{8}$	74.391	58.426	27.096	10 $\frac{5}{8}$	112.89	88.664	33.379
6 $\frac{11}{16}$	44.723	35.125	21.009	8 $\frac{11}{16}$	75.473	59.276	27.293	10 $\frac{11}{16}$	114.22	89.710	33.576
6 $\frac{3}{4}$	45.563	35.785	21.206	8 $\frac{3}{4}$	76.563	60.132	27.489	10 $\frac{3}{4}$	115.56	90.763	33.772
6 $\frac{13}{16}$	46.410	36.451	21.402	8 $\frac{13}{16}$	77.660	60.994	27.685	10 $\frac{13}{16}$	116.91	91.821	33.969
6 $\frac{7}{8}$	47.266	37.122	21.599	8 $\frac{7}{8}$	78.766	61.863	27.882	10 $\frac{7}{8}$	118.27	92.886	34.165
6 $\frac{15}{16}$	48.129	37.800	21.795	8 $\frac{15}{16}$	79.879	62.737	28.078	10 $\frac{15}{16}$	119.63	93.957	34.361
7	49.000	38.485	21.991	9	81.000	63.617	28.274	11	121.00	95.033	34.558
7 $\frac{1}{16}$	49.879	39.175	22.188	9 $\frac{1}{16}$	82.129	64.504	28.471	11 $\frac{1}{16}$	122.38	96.116	34.754
7 $\frac{1}{8}$	50.766	39.871	22.384	9 $\frac{1}{8}$	83.266	65.397	28.667	11 $\frac{1}{8}$	123.77	97.206	34.950
7 $\frac{3}{16}$	51.660	40.574	22.580	9 $\frac{3}{16}$	84.410	66.296	28.863	11 $\frac{3}{16}$	125.16	98.301	35.147
7 $\frac{1}{4}$	52.563	41.283	22.777	9 $\frac{1}{4}$	85.563	67.201	29.060	11 $\frac{1}{4}$	126.56	99.402	35.343
7 $\frac{5}{16}$	53.473	41.997	22.973	9 $\frac{5}{16}$	86.723	68.112	29.256	11 $\frac{5}{16}$	127.97	100.51	35.539
7 $\frac{3}{8}$	54.391	42.718	23.169	9 $\frac{3}{8}$	87.891	69.029	29.453	11 $\frac{3}{8}$	129.39	101.62	35.736
7 $\frac{7}{16}$	55.316	43.446	23.366	9 $\frac{7}{16}$	89.066	69.953	29.649	11 $\frac{7}{16}$	130.82	102.74	35.932
7 $\frac{1}{2}$	56.250	44.179	23.562	9 $\frac{1}{2}$	90.250	70.882	29.845	11 $\frac{1}{2}$	132.25	103.87	36.128
7 $\frac{9}{16}$	57.191	44.918	23.758	9 $\frac{9}{16}$	91.441	71.818	30.042	11 $\frac{9}{16}$	133.69	105.00	36.325
7 $\frac{5}{8}$	58.141	45.664	23.955	9 $\frac{5}{8}$	92.641	72.760	30.238	11 $\frac{5}{8}$	135.14	106.14	36.521
7 $\frac{11}{16}$	59.098	46.415	24.151	9 $\frac{11}{16}$	93.848	73.708	30.434	11 $\frac{11}{16}$	136.60	107.28	36.717
7 $\frac{3}{4}$	60.063	47.173	24.347	9 $\frac{3}{4}$	95.063	74.662	30.631	11 $\frac{3}{4}$	138.06	108.43	36.914
7 $\frac{13}{16}$	61.035	47.937	24.544	9 $\frac{13}{16}$	96.285	75.622	30.827	11 $\frac{13}{16}$	139.54	109.59	37.110
7 $\frac{7}{8}$	62.016	48.707	24.740	9 $\frac{7}{8}$	97.516	76.589	31.023	11 $\frac{7}{8}$	141.02	110.75	37.307
7 $\frac{15}{16}$	63.004	49.483	24.936	9 $\frac{15}{16}$	98.754	77.561	31.220	11 $\frac{15}{16}$	142.50	111.92	37.503

TABLE OF AREAS

(Continued)

Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circumference of ○ in Inches	Size Inches	Area of □ in Square Inches	Area of ○ in Square Inches	Circumference of ○ in Inches
12	144	113.09	37.699	44	1936	1520.53	138.230
13	169	132.73	40.840	45	2025	1590.43	141.372
14	196	153.93	43.962	46	2116	1661.90	144.513
15	225	176.71	47.124	47	2209	1734.94	147.655
16	256	201.06	50.265	48	2304	1809.56	150.796
17	289	226.98	53.407	49	2401	1885.74	153.938
18	324	254.46	56.548	50	2500	1963.50	157.080
19	361	283.52	59.690	51	2601	2042.82	160.221
20	400	314.16	62.832	52	2704	2123.72	163.363
21	441	346.36	65.973	53	2809	2206.18	166.504
22	484	380.13	69.115	54	2916	2290.22	169.646
23	529	415.47	72.256	55	3025	2375.83	172.788
24	576	452.39	75.398	56	3136	2463.01	175.929
25	625	490.87	78.540	57	3249	2551.76	179.071
26	676	530.93	81.681	58	3364	2642.08	182.212
27	729	572.55	84.823	59	3481	2733.97	185.354
28	784	615.75	87.964	60	3600	2827.44	188.496
29	841	660.52	91.106	61	3721	2922.47	191.637
30	900	706.86	94.248	62	3844	3019.07	194.779
31	961	754.76	97.389	63	3969	3117.25	197.920
32	1024	804.24	100.531	64	4096	3216.99	201.062
33	1089	855.30	103.672	65	4225	3318.31	204.204
34	1156	907.92	106.814	66	4356	3421.20	207.345
35	1225	962.11	109.956	67	4489	3525.66	210.487
36	1296	1017.87	113.097	68	4624	3631.68	213.628
37	1369	1075.21	116.239	69	4761	3739.28	216.770
38	1444	1134.11	119.380	70	4900	3848.46	219.912
39	1521	1194.59	122.522	71	5041	3959.20	223.053
40	1600	1256.64	125.644	72	5184	4071.51	226.195
41	1681	1320.25	128.805	73	5329	4185.39	229.336
42	1764	1385.44	131.947	74	5476	4300.85	232.478
43	1849	1452.20	135.088	75	5625	4417.87	235.620

TABLE OF CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches.....	Centimeters.....	2.54
Feet.....	Meters.....	0.3048
Miles.....	Kilometers.....	1.60935
Meters.....	Inches.....	39.37
Meters.....	Feet.....	3.28083
Kilometers.....	Miles.....	0.62137
Square inches.....	Square centimeters.....	6.4516
Square feet.....	Square meters.....	0.0929
Square yards.....	Square meters.....	0.8361
Square centimeters.....	Square inches.....	0.155
Square meters.....	Square yards.....	1.196
Cubic inches.....	Cubic centimeters.....	16.3872
Cubic yards.....	Cubic meters.....	0.7646
Cubic centimeters.....	Cubic inches.....	0.06102
Cubic meters.....	Cubic yards.....	1.308
Fluid ounces.....	Cubic centimeters.....	29.574
Quarts.....	Liters.....	0.9464
Cubic centimeters.....	Fluid ounces.....	0.0344
Liters.....	Quarts.....	1.0567
Grains.....	Milligrams.....	64.7989
Ounces (Avoirdupois).....	Grams.....	28.3495
Pounds (Avoirdupois).....	Kilograms.....	0.4536
Ounces (Apothecary).....	Grams.....	31.1035
Pounds (Apothecary).....	Kilograms.....	0.3732
Grams.....	Grains.....	15.4324
Kilograms.....	Pounds.....	2.2046
Kilowatts.....	Horse Power.....	1.34
Horse Power.....	Kilowatts.....	0.746
B. T. U.....	Calories.....	252
Calories.....	B. T. U.....	.003968

SAFE WORKING PRESSURE FOR SEAMLESS BRASS
AND COPPER TUBES

To determine safe working pressure for Seamless Brass and Copper Tubing, in pounds per square inch, multiply the tensile strength by the thickness of the metal in inches, or decimal parts of an inch. Divide by the radius (one-half of the inside diameter) expressed in inches, and the result shows the bursting pressure in pounds per square inch. Brass Tubes have a tensile strength of 40,000 pounds, and Copper Tubes have a tensile strength of 30,000 pounds per square inch. If a safety factor of six (6) is allowed, divide the above result by six (6). Example: A tube 4 inches inside diameter, No. 8, B. & S. Gauge, made of Brass, which has a tensile strength of 40,000 pounds per square inch, shows 428 pounds safe working pressure per square inch as follows:

40,000 lbs. per square inch.
.1284 or No. 8, B. & S. thick.

1/2 diam. of 4 in. Tube = 2 in.)

5136.0000

Factor of safety, 6)2568.0000

428 lbs. pressure per square inch.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

Weight of

BRASS AND 18% NICKEL SILVER SHEET

(Brown & Sharpe's Gauge)

No.	Pounds per Sq. Foot		No.	Pounds per Sq. Foot	
	Brass	Nickel Sil.		Brass	Nickel Sil.
0000	20.27	20.94	19	1.581	1.634
000	18.05	18.65	20	1.408	1.455
00	16.07	16.61	21	1.254	1.296
0	14.31	14.79	22	1.117	1.154
1	12.75	13.17	23	.9945	1.028
2	11.35	11.73	24	.8856	.9151
3	10.11	10.44	25	.7887	.8150
4	9.002	9.300	26	.7024	.7258
5	8.016	8.282	27	.6255	.6463
6	7.139	7.375	28	.5570	.5756
7	6.357	6.568	29	.4960	.5125
8	5.661	5.849	30	.4417	.4564
9	5.042	5.209	31	.3934	.4065
10	4.490	4.639	32	.3503	.3620
11	3.998	4.131	33	.3119	.3224
12	3.560	3.679	34	.2778	.2871
13	3.171	3.276	35	.2474	.2556
14	2.824	2.917	36	.2203	.2277
15	2.514	2.598	37	.1962	.2028
16	2.239	2.314	38	.1747	.1805
17	1.994	2.060	39	.1556	.1608
18	1.776	1.843	40	.1386	.1432

Thickness in Inches

Inch	Pounds per Sq. Foot		Inch	Pounds per Sq. Foot	
	Brass	Nickel Sil.		Brass	Nickel Sil.
$\frac{1}{16}$	2.754	2.85	$1\frac{1}{16}$	46.81	48.38
$\frac{1}{8}$	5.508	5.69	$1\frac{1}{8}$	49.57	51.22
$\frac{3}{16}$	8.261	8.54	$1\frac{3}{16}$	52.32	54.07
$\frac{1}{4}$	11.02	11.38	$1\frac{1}{4}$	55.18	56.91
$\frac{5}{16}$	13.77	14.23	$1\frac{5}{16}$	57.93	59.76
$\frac{3}{8}$	16.52	17.07	$1\frac{3}{8}$	60.58	62.61
$\frac{7}{16}$	19.28	19.92	$1\frac{7}{16}$	63.34	65.45
$\frac{1}{2}$	22.03	22.77	$1\frac{1}{2}$	66.09	68.30
$\frac{9}{16}$	24.78	25.61	$1\frac{9}{16}$	68.84	71.14
$\frac{5}{8}$	27.54	28.46	$1\frac{5}{8}$	71.60	73.99
$\frac{11}{16}$	30.29	31.30	$1\frac{11}{16}$	74.35	76.83
$\frac{3}{4}$	33.05	34.15	$1\frac{3}{4}$	77.11	79.68
$\frac{13}{16}$	35.80	36.99	$1\frac{13}{16}$	79.86	82.53
$\frac{7}{8}$	38.55	39.84	$1\frac{7}{8}$	82.61	85.37
$\frac{15}{16}$	41.31	42.69	$1\frac{15}{16}$	85.37	88.22
1	44.06	45.53	2	88.12	91.06

To determine the weight of Sheet Nickel Silver other than 18%, multiply above weights for Nickel Silver as follows:

For 10% by .9912

for 15% by .9862

for 30% by .9985

Variations from these weights must be expected in practice.

Weight of
COPPER SHEETS

Brown & Sharpe's Gauge			Stubs' Gauge			Inches and Fractions	
No.	Decimal Equivalent Inches	Pounds per Sq. Ft.	No.	Decimal Equivalent Inches	Pounds per Sq. Ft.	Thickness	Pounds per Sq. Ft.
0000	.4600	21.30	0000	.454	21.02	$\frac{1}{16}$	2.894
000	.4096	18.97	000	.425	19.68	$\frac{1}{8}$	5.788
00	.3648	16.89	00	.380	17.59	$\frac{3}{16}$	8.681
0	.3249	15.04	0	.340	15.74	$\frac{1}{4}$	11.58
1	.2893	13.39	1	.300	13.89	$\frac{5}{16}$	14.47
2	.2576	11.93	2	.284	13.15	$\frac{3}{8}$	17.36
3	.2294	10.62	3	.259	11.99	$\frac{7}{16}$	20.25
4	.2043	9.460	4	.238	11.02	$\frac{1}{2}$	23.15
5	.1819	8.424	5	.220	10.19	$\frac{9}{16}$	26.04
6	.1620	7.502	6	.203	9.399	$\frac{5}{8}$	28.94
7	.1443	6.681	7	.180	8.334	$\frac{11}{16}$	31.83
8	.1285	5.949	8	.165	7.639	$\frac{3}{4}$	34.73
9	.1144	5.298	9	.148	6.852	$\frac{13}{16}$	37.62
10	.1019	4.718	10	.134	6.204	$\frac{7}{8}$	40.51
11	.09074	4.201	11	.120	5.556	$\frac{15}{16}$	43.41
12	.08081	3.741	12	.109	5.047	1	46.30
13	.07196	3.332	13	.095	4.399	$1\frac{1}{16}$	49.19
14	.06408	2.967	14	.083	3.843	$1\frac{1}{8}$	52.09
15	.05707	2.642	15	.072	3.334	$1\frac{3}{16}$	54.98
16	.05082	2.353	16	.065	3.009	$1\frac{1}{4}$	57.88
17	.04526	2.096	17	.058	2.685	$1\frac{5}{16}$	60.77
18	.04030	1.866	18	.049	2.269	$1\frac{3}{8}$	63.66
19	.03589	1.662	19	.042	1.945	$1\frac{7}{16}$	66.56
20	.03196	1.480	20	.035	1.621	$1\frac{1}{2}$	69.45
21	.02846	1.318	21	.032	1.482	$1\frac{9}{16}$	72.35
22	.02535	1.174	22	.028	1.296	$1\frac{5}{8}$	75.24
23	.02257	1.045	23	.025	1.158	$1\frac{11}{16}$	78.13
24	.02010	.9307	24	.022	1.019	$1\frac{3}{4}$	81.03
25	.01790	.8288	25	.020	.9260	$1\frac{13}{16}$	83.92
26	.01594	.7381	26	.018	.8334	$1\frac{7}{8}$	86.81
27	.01420	.6573	27	.016	.7408	$1\frac{15}{16}$	89.71
28	.01264	.5853	28	.014	.6482	2	92.60
29	.01126	.5212	29	.013	.6019		
30	.01003	.4642	30	.012	.5556		
31	.008928	.4134	31	.010	.4630		
32	.007950	.3681	32	.009	.4167		
33	.007080	.3278	33	.008	.3704		
34	.006305	.2919	34	.007	.3241		
35	.005615	.2600	35	.005	.2315		
36	.005000	.2315	36	.004	.1852		
37	.004453	.2062					
38	.003965	.1836					
39	.003531	.1635					
40	.003145	.1456					

Variations from these weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

Weight of BRASS AND COPPER RODS

Diameter Inches	Pounds per Linear Foot					
	Round		Square		Hexagon	
	Brass	Copper	Brass	Copper	Brass	Copper
$\frac{1}{16}$	.01132	.01184	.01441	.01507	.01248	.01305
$\frac{1}{8}$	.04527	.04735	.05764	.06029	.04992	.05221
$\frac{3}{16}$	.1019	.1065	.1297	.1356	.1123	.1175
$\frac{1}{4}$	.1811	.1894	.2306	.2412	.1997	.2088
$\frac{5}{16}$	.2829	.2959	.3602	.3768	.3120	.3263
$\frac{3}{8}$	.4074	.4261	.5188	.5426	.4493	.4699
$\frac{7}{16}$	.5546	.5800	.7061	.7386	.6115	.6396
$\frac{1}{2}$	.7243	.7576	.9222	.9646	.7987	.8354
$\frac{9}{16}$	.9167	.9588	1.167	1.221	1.011	1.057
$\frac{5}{8}$	1.132	1.184	1.441	1.507	1.248	1.305
$\frac{3}{4}$	1.369	1.432	1.744	1.824	1.510	1.579
$\frac{7}{8}$	1.630	1.705	2.075	2.170	1.797	1.880
$\frac{1}{1}$	1.913	2.001	2.435	2.547	2.109	2.206
$\frac{1}{8}$	2.218	2.320	2.824	2.954	2.446	2.558
$\frac{1}{4}$	2.546	2.663	3.242	3.391	2.808	2.937
$\frac{1}{2}$	2.897	3.030	3.689	3.853	3.195	3.341
$\frac{3}{4}$	3.271	3.421	4.164	4.356	3.607	3.772
$\frac{1}{1}$	3.667	3.835	4.669	4.883	4.043	4.229
$\frac{1}{8}$	4.086	4.273	5.202	5.441	4.505	4.712
$\frac{1}{4}$	4.527	4.735	5.764	6.029	4.992	5.221
$\frac{3}{8}$	4.991	5.220	6.355	6.647	5.503	5.756
$\frac{1}{2}$	5.478	5.729	6.974	7.295	6.040	6.317
$\frac{3}{4}$	5.987	6.262	7.623	7.973	6.602	6.905
$\frac{1}{1}$	6.519	6.818	8.300	8.681	7.188	7.518
$\frac{1}{8}$	7.073	7.398	9.006	9.420	7.800	8.158
$\frac{1}{4}$	7.651	8.002	9.741	10.19	8.436	8.824
$\frac{3}{8}$	8.250	8.630	10.50	10.99	9.097	9.515
$\frac{1}{2}$	8.873	9.281	11.30	11.82	9.784	10.23
$\frac{3}{4}$	9.518	9.955	12.12	12.68	10.50	10.98
$\frac{1}{1}$	10.19	10.65	12.97	13.56	11.23	11.75
$\frac{1}{8}$	10.88	11.38	13.85	14.48	11.99	12.54
$\frac{1}{4}$	11.59	12.12	14.76	15.43	12.78	13.37
$\frac{3}{8}$	13.08	13.68	16.66	17.42	14.43	15.09
$\frac{1}{2}$	14.67	15.34	18.68	19.53	16.17	16.92
$\frac{3}{4}$	16.34	17.09	20.81	21.76	18.02	18.85
$\frac{1}{1}$	18.11	18.94	23.06	24.12	19.97	20.88
$\frac{1}{8}$	19.96	20.88	25.42	26.59	22.01	23.02
$\frac{1}{4}$	21.91	22.92	27.90	29.18	24.16	25.27
$\frac{3}{8}$	23.95	25.05	30.49	31.89	26.41	27.62
$\frac{1}{2}$	26.08	27.27	33.20	34.73	28.75	30.07
$\frac{3}{4}$	.....	32.01	.....	40.75	.....	35.29
$\frac{1}{1}$	.....	37.12	.....	47.27	.....	40.93
$\frac{1}{8}$	.....	42.61	.....	54.26	.....	46.99
$\frac{1}{4}$	.....	48.49	.....	61.73	.....	53.46
$\frac{3}{8}$	.....	54.74	.....	69.69	.....	60.36
$\frac{1}{2}$	.....	61.37	.....	78.13	.....	67.67
$\frac{3}{4}$	.....	68.37	.....	87.06	.....	75.39
$\frac{1}{1}$	.....	75.76	.....	96.46	.....	83.54
$\frac{1}{8}$	.....	83.53	.....	106.3	.....	92.10
$\frac{1}{4}$	.....	91.67	.....	116.7	.....	101.1
$\frac{3}{8}$	.....	100.2	.....	127.6	.....	110.5
$\frac{1}{2}$	.....	109.1	.....	138.9	.....	120.3

Variations from these weights must be expected in practice.

Weight of

DRAWN COPPER BARS

Standard Rectangular Sizes Special Sizes and Shapes Made to Order

Pounds Per Linear Foot

Size, In.	Pounds	Size, In.	Pounds	Size, In.	Pounds	
$\frac{1}{16}$ x	$\frac{1}{8}$ 0.1206	$\frac{1}{4}$ x	2 1.929	$\frac{1}{2}$ x	$4\frac{1}{4}$ 8.199	
	$\frac{3}{8}$.1507		$2\frac{1}{4}$ 2.170		$4\frac{1}{2}$ 8.681	
	$\frac{3}{4}$.1809		$2\frac{1}{2}$ 2.412		$4\frac{3}{4}$ 9.164	
	$\frac{7}{8}$.2110		$2\frac{3}{4}$ 2.653		5 9.646	
	1 .2412		3 2.894		$5\frac{1}{4}$ 10.13	
	$1\frac{1}{4}$.3014		$3\frac{1}{4}$ 3.135		$5\frac{1}{2}$ 10.61	
	$1\frac{1}{2}$.3617		$3\frac{1}{2}$ 3.376		$5\frac{3}{4}$ 11.09	
					6 11.58	
$\frac{1}{8}$ x	$\frac{1}{2}$ 0.2412	$\frac{3}{8}$ x	4 3.858	$\frac{3}{4}$ x	1 2.894	
	$\frac{3}{8}$.3014		$4\frac{1}{4}$ 4.100		$1\frac{1}{4}$ 3.617	
	$\frac{3}{4}$.3617		$4\frac{1}{2}$ 4.341		$1\frac{1}{2}$ 4.341	
	$\frac{7}{8}$.4220		$4\frac{3}{4}$ 4.582		$1\frac{3}{4}$ 5.064	
	1 .4823		5 4.823		2 5.788	
	$1\frac{1}{4}$.6029		$5\frac{1}{4}$ 5.064		$2\frac{1}{4}$ 6.511	
	$1\frac{1}{2}$.7235		$5\frac{1}{2}$ 5.305		$2\frac{1}{2}$ 7.235	
	$1\frac{3}{4}$.8440		$5\frac{3}{4}$ 5.546		$2\frac{3}{4}$ 7.958	
	2 .9646		6 5.788		3 8.681	
	$2\frac{1}{4}$ 1.085		$\frac{1}{2}$ x		1 1.447	$3\frac{1}{4}$ 9.405
	$2\frac{1}{2}$ 1.206				$1\frac{1}{4}$ 1.809	$3\frac{1}{2}$ 10.13
	$2\frac{3}{4}$ 1.326				$1\frac{1}{2}$ 2.170	$3\frac{3}{4}$ 10.85
3 1.447	$1\frac{3}{4}$ 2.532	4 11.58				
$3\frac{1}{4}$ 1.567	2 2.894	$4\frac{1}{4}$ 12.30				
$3\frac{1}{2}$ 1.688	$2\frac{1}{4}$ 3.256	$4\frac{1}{2}$ 13.02				
$3\frac{3}{4}$ 1.809	$2\frac{1}{2}$ 3.617	$4\frac{3}{4}$ 13.75				
4 1.929	$2\frac{3}{4}$ 3.979	5 14.47				
$\frac{1}{4}$ x	$\frac{1}{2}$ 0.3617	3 4.341		$5\frac{1}{4}$ 15.19		
	$\frac{3}{8}$.4522	$3\frac{1}{4}$ 4.702		$5\frac{1}{2}$ 15.92		
	$\frac{3}{4}$.5426	$3\frac{1}{2}$ 5.064		$5\frac{3}{4}$ 16.64		
	$\frac{7}{8}$.6330	$3\frac{3}{4}$ 5.426		6 17.36		
	1 .7235	4 5.788	1 x	1 3.858		
	$1\frac{1}{4}$.9043	$4\frac{1}{4}$ 6.149		$1\frac{1}{4}$ 4.823		
	$1\frac{1}{2}$ 1.085	$4\frac{1}{2}$ 6.511		$1\frac{1}{2}$ 5.788		
	$1\frac{3}{4}$ 1.266	$4\frac{3}{4}$ 6.873		$1\frac{3}{4}$ 6.752		
	2 1.447	5 7.235		2 7.717		
	$2\frac{1}{4}$ 1.628	$5\frac{1}{4}$ 7.596		$2\frac{1}{4}$ 8.681		
	$2\frac{1}{2}$ 1.809	$5\frac{1}{2}$ 7.958		$2\frac{1}{2}$ 9.646		
	$2\frac{3}{4}$ 1.989	$5\frac{3}{4}$ 8.320		$2\frac{3}{4}$ 10.61		
3 2.170	6 8.681	3 11.58				
$3\frac{1}{4}$ 2.351	$\frac{1}{2}$ x	1 1.929		$3\frac{1}{4}$ 12.54		
$3\frac{1}{2}$ 2.532		$1\frac{1}{4}$ 2.412		$3\frac{1}{2}$ 13.50		
$3\frac{3}{4}$ 2.713		$1\frac{1}{2}$ 2.894		$3\frac{3}{4}$ 14.47		
4 2.894		$1\frac{3}{4}$ 3.376	4 15.43			
$\frac{3}{4}$ x		2 3.858	$2\frac{1}{4}$ 4.341	$4\frac{1}{4}$ 16.40		
		$\frac{1}{2}$ 0.4823	$2\frac{1}{2}$ 4.823	$4\frac{1}{2}$ 17.36		
		$\frac{3}{8}$.6029	$2\frac{3}{4}$ 5.305	$4\frac{3}{4}$ 18.33		
		$\frac{3}{4}$.7235	3 5.788	5 19.29		
		$\frac{7}{8}$.8440	$3\frac{1}{4}$ 6.270	$5\frac{1}{4}$ 20.26		
		1 .9646	$3\frac{1}{2}$ 6.752	$5\frac{1}{2}$ 21.22		
		$1\frac{1}{4}$ 1.206	$3\frac{3}{4}$ 7.235	$5\frac{3}{4}$ 22.19		
		$1\frac{1}{2}$ 1.447	4 7.717	6 23.15		
	$1\frac{3}{4}$ 1.688					

Variations from these weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

Table of Weights and Measurements of
SEAMLESS BRASS AND COPPER TUBE. STANDARD PIPE SIZES
REGULAR AND EXTRA HEAVY

Iron pipe sizes	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10
Regular																				
Brass, wt. per lineal ft.	.246	.437	.612	.911	1.235	1.740	2.557	3.037	4.017	5.830	8.314	10.85	12.29	13.74	15.40	18.44	23.92	30.05	36.34	43.91
Copper, weight per lineal foot	.259	.459	.644	.958	1.298	1.829	2.689	3.193	4.224	6.130	8.741	11.41	12.93	14.44	16.19	19.39	25.15	31.60	38.84	46.17
Exact outside dia.	.405	.640	.875	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625	7.625	8.625	9.625	10.750
Exact inside dia.	.281	.375	.484	.625	.822	1.062	1.368	1.600	2.062	2.500	3.062	3.500	4.000	4.500	5.062	6.125	7.062	7.982	8.937	10.019
Exact thickness of walls	.064	.083	.096	.1075	.114	.126	.146	.150	.157	.188	.219	.250	.250	.250	.250	.250	.283	.322	.340	.370
Brass, theoretical safe working pressure.																				
Factor safety six...	1776	1465	1160	1024	840	750	628	580	509	518	461	449	427	412	400	375	366	357	349	340
Copper, theoretical safe working pressure.																				
Factor safety six...	1332	1102	870	798	630	563	471	435	381	391	346	337	320	309	300	281	275	267	261	255
Thickness of walls at bottom of thread	.057	.104	.192	.305	.533	.863	1.496	2.038	3.355	4.783	7.388	9.887	12.730	15.940	19.990	28.890	38.740	50.040	63.630	78.840
Extra Heavy																				
Brass, wt. per lineal ft.	.353	.593	.805	1.191	1.622	2.386	3.291	3.986	5.508	8.407	11.24	13.66	16.41	20.07	22.51	31.32	41.22	47.00		
Copper, weight per lineal foot	.371	.624	.847	1.253	1.706	2.509	3.460	4.191	5.791	8.839	11.82	14.37	17.25	21.10	23.67	32.93	43.34	49.42		
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
Brass, theoretical safe working pressure.																				
Factor safety six...	4442	3401	2508	2166	1739	1500	1250	1142	1006	991	904	846	814		.763	.740				
Copper, theoretical safe working pressure.																				
Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
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Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
Brass, theoretical safe working pressure.																				
Factor safety six...	4442	3401	2508	2166	1739	1500	1250	1142	1006	991	904	846	814		.763	.740				
Copper, theoretical safe working pressure.																				
Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
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Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
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Factor safety six...	4442	3401	2508	2166	1739	1500	1250	1142	1006	991	904	846	814		.763	.740				
Copper, theoretical safe working pressure.																				
Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
Brass, theoretical safe working pressure.																				
Factor safety six...	4442	3401	2508	2166	1739	1500	1250	1142	1006	991	904	846	814		.763	.740				
Copper, theoretical safe working pressure.																				
Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.100	.123	.127	.149	.157	.182	.194	.203	.221	.250	.304	.321	.341	.375	.375	.437				
Brass, theoretical safe working pressure.																				
Factor safety six...	4442	3401	2508	2166	1739	1500	1250	1142	1006	991	904	846	814		.763	.740				
Copper, theoretical safe working pressure.																				
Factor safety six...	3318	2551	1881	1625	1302	1125	938	857	755	743	678	635	611		578	555				
Exact outside dia.	.405	.540	.675	.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625				
Exact inside dia.	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892	3.358	3.818	4.250	4.813	5.750				
Exact thickness of walls	.10																			

WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES

Pounds per Linear Foot

No.	Thickness Inches		1/4 Inch		1/8 Inch		3/16 Inch		1/4 Inch		1/2 Inch		3/4 Inch		I. D. Tubes *Add to O. D. Tubes	
	Nearest Fraction	Dec. Equiv.	1/4 Inch		1/8 Inch		3/16 Inch		1/4 Inch		1/2 Inch		3/4 Inch		I. D. Tubes *Add to O. D. Tubes	
			Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper
3	1/4 +	.259													1.55	1.63
4	15/64 +	.238													1.31	1.38
5	3/32	.220													1.12	1.18
6	13/64	.203													.954	1.00
7	3/16 -	.180													.750	.788
8	11/64 -	.165													.630	.662
9	9/64 +	.148													.507	.533
10	7/64 -	.134													.416	.437
11	1/8 -	.120													.333	.350
12	7/64	.109													.275	.289
13	3/32 +	.095													.209	.220
14	5/64 +	.083													.159	.168
15	5/64 -	.072													.120	.126
16	1/16 +	.065	.139	.146	.186	.196	.233	.245	.376	.396	.445	.468	.514	.540	.333	.350
17	1/16 -	.058	.129	.135	.171	.180	.213	.224	.340	.358	.400	.421	.460	.484	.275	.289
18	3/64 +	.049	.114	.120	.149	.157	.185	.194	.304	.320	.357	.375	.409	.430	.209	.220
19	3/64 -	.042	.101	.106	.131	.138	.162	.170	.280	.295	.327	.344	.374	.393	.159	.168
20	...	.035	.087	.092	.112	.118	.138	.145	.255	.268	.297	.312	.339	.356	.120	.126
21	1/32 +	.032	.081	.085	.104	.109	.127	.134	.220	.232	.256	.269	.291	.306	.098	.103
22	1/32 -	.028	.072	.076	.092	.097	.112	.118	.163	.171	.188	.198	.214	.225	.078	.082
23	...	.025	.065	.068	.083	.087	.101	.106	.150	.158	.173	.182	.196	.207	.056	.058
24	...	.022	.058	.061	.074	.078	.090	.094	.133	.139	.153	.161	.173	.182	.041	.043
25020	.053	.056	.068	.071	.082	.086	.119	.125	.137	.144	.155	.163	.028	.030

The + sign shows that the fraction is more than 1 per cent. full.

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Variations from these weights must be expected in practice.

WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES
Outside Diameter, Inches Pounds per Linear Foot

No.	Thickness Inches	Stubs' Gauge		$\frac{3}{4}$ Inch		$\frac{7}{8}$ Inch		1 Inch		$1\frac{1}{4}$ Inch		$1\frac{1}{2}$ Inch		I. D. Tubes *Add to O. D. Tubes	
		Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper
3	$\frac{1}{4}$ +		.259											1.55	1.63
4	$\frac{1}{4}$ +		.238											1.31	1.38
5	$\frac{3}{16}$		.220											1.12	1.18
6	$\frac{3}{16}$ -		.203											.954	1.00
7	$\frac{1}{2}$ -		.180											.750	.788
8	$\frac{1}{2}$ -		.165							2.071	2.178	2.549	2.680	.630	.662
9	$\frac{5}{8}$ +		.148							1.887	1.984	2.315	2.434	.507	.533
10	$\frac{5}{8}$ -		.134							1.730	1.819	2.118	2.227	.416	.437
11	$\frac{1}{2}$ -	.701	.737	.875	.920	1.048	1.102	1.222	1.285	1.569	1.650	1.916	2.015	.333	.350
12	$\frac{7}{16}$	.651	.684	.808	.850	.966	1.016	1.124	1.181	1.439	1.513	1.754	1.844	.275	.289
13	$\frac{3}{8}$ +	.583	.613	.720	.757	.857	.901	.995	1.046	1.270	1.335	1.544	1.624	.209	.220
14	$\frac{5}{8}$ +	.520	.547	.641	.673	.761	.800	.881	.926	1.121	1.178	1.361	1.431	.159	.168
15	$\frac{5}{8}$ -	.461	.484	.565	.594	.669	.703	.773	.813	.981	1.032	1.190	1.251	.120	.126
16	$\frac{1}{2}$ +	.421	.443	.515	.542	.609	.640	.703	.737	.891	.937	1.079	1.135	.098	.103
17	$\frac{1}{2}$ -	.380	.400	.464	.488	.548	.576	.632	.665	.800	.841	.968	1.017	.078	.082
18	$\frac{3}{4}$ +	.327	.343	.397	.418	.468	.492	.539	.567	.681	.716	.823	.865	.056	.058
19	$\frac{3}{4}$ -	.283	.298	.344	.362	.405	.426	.466	.489	.587	.617	.708	.745	.041	.043
20	....	.239	.251	.290	.304	.340	.358	.391	.411	.492	.517	.593	.624	.028	.030
21	$\frac{1}{2}$ +	.220	.231	.266	.280	.312	.328	.358	.377	.451	.474	.544	.571	.024	.025
22	$\frac{3}{8}$ -	.193	.203	.234	.246	.274	.289	.315	.331	.396	.416	.477	.501	.018	.019
23	....	.174	.182	.210	.220	.246	.259	.282	.297	.354	.373	.427	.449	.014	.015
24153	.161	.185	.195	.217	.228	.249	.262	.313	.329	.376	.396	.011	.012
25140	.147	.169	.178	.198	.208	.227	.238	.285	.299	.342	.360	.009	.010

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WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES

No.	Stubs' Gauge		Outside Diameter, Inches				Pounds per Linear Foot				3 Inch		I. D. Tubes *Add to O. D. Tubes	
	Thickness Inches		1 1/4 Inch		2 Inch		2 1/2 Inch		2 3/4 Inch		Brass	Copper	Brass	Copper
	Nearest Fraction	Dec. Equiv.	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper				
3	1/4 +	.259	4.468	4.698	5.217	5.486	5.966	6.273	6.715	7.061	8.214	8.636	1.55	1.63
4	3/8 +	.238	4.164	4.378	4.852	5.102	5.540	5.825	6.229	6.549	7.606	7.997	1.31	1.38
5	1/2 +	.220	3.894	4.095	4.531	4.764	5.167	5.433	5.804	6.102	7.076	7.440	1.12	1.18
6	5/8 +	.203	3.633	3.820	4.221	4.438	4.808	5.055	5.395	5.672	6.569	6.907	.954	1.00
7	3/4 -	.180	3.270	3.438	3.790	3.985	4.311	4.533	4.832	5.080	5.873	6.175	.750	.788
8	1 1/4 -	.165	3.026	3.181	3.503	3.683	3.980	4.185	4.458	4.687	5.412	5.691	.662	.662
9	1 1/2 -	.148	2.743	2.884	3.171	3.334	3.599	3.785	4.027	4.235	4.884	5.135	.507	.533
10	1 3/4 -	.134	2.505	2.634	2.893	3.042	3.281	3.449	3.668	3.857	4.443	4.672	.416	.437
11	2 -	.120	2.263	2.380	2.610	2.744	2.957	3.109	3.304	3.474	3.999	4.204	.333	.350
12	2 1/4 -	.109	2.070	2.176	2.385	2.507	2.700	2.839	3.015	3.170	3.646	3.833	.275	.289
13	2 1/2 +	.095	1.819	1.913	2.094	2.202	2.369	2.491	2.643	2.779	3.193	3.357	.209	.220
14	2 3/4 +	.083	1.601	1.683	1.841	1.936	2.081	2.188	2.321	2.440	2.801	2.945	.159	.168
15	3 -	.072	1.398	1.470	1.606	1.689	1.814	1.908	2.023	2.127	2.439	2.565	.120	.126
16	3 1/2 +	.065	1.267	1.332	1.455	1.530	1.643	1.728	1.831	1.925	2.207	2.321	.098	.103
17	4 -	.058	1.135	1.194	1.303	1.370	1.471	1.547	1.639	1.723	1.806	1.899	.078	.082
18	4 1/2 +	.049	.964	1.014	1.106	1.163	1.248	1.312	1.390	1.461	1.531	1.610	.056	.058
19	5 -	.042	.830	.873	.951	1.000	1.073	1.128	1.194	1.256	1.316	1.384	.041	.043
20	5 1/2 -	.035	.694	.730	.796	.837	.897	.943	.998	1.050	1.099	1.156	.028	.030
21	6 +	.032	.636	.669	.729	.766	.821	.863	.914	.961	1.006	1.058	.024	.025
22	6 1/2 -	.028	.558	.587	.639	.672	.720	.757	.801	.842	.882	.927	.018	.019
23	7 -	.025	.499	.525	.571	.601	.644	.677	.716	.753	.788	.829	.014	.015
24	7 1/2 -	.022	.440	.462	.503	.529	.567	.596	.631	.663	.696	.731	.011	.012
25	8 -	.020	.400	.421	.458	.482	.516	.543	.574	.603	.636	.669	.009	.010

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WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

WEIGHT OF SEAMLESS BRASS AND COPPER TUBES

No.	Thickness Inches		3 1/4 Inch		3 1/2 Inch		3 3/4 Inch		4 Inch		4 1/4 Inch		4 1/2 Inch		I. D. Tubes *Add to O. D. Tubes	
	Nearest Fraction	Dec. Equiv.	3 1/4 Inch		3 1/2 Inch		3 3/4 Inch		4 Inch		4 1/4 Inch		4 1/2 Inch		Brass	Copper
			Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper		
3	3/4 +	.259	8.963	9.424	9.712	10.21	10.46	11.00	11.21	11.79	11.96	12.57	12.71	13.36	1.55	1.63
4	4/5 +	.238	8.294	8.721	8.982	9.444	9.671	10.17	10.36	10.89	11.05	11.62	11.74	12.34	1.31	1.38
5	1/2 +	.220	7.713	8.109	8.349	8.778	8.985	9.447	9.622	10.12	10.26	10.79	10.89	11.45	1.12	1.18
6	5/8 +	.203	7.156	7.525	7.744	8.142	8.331	8.759	8.918	9.377	9.505	9.994	10.09	10.61	.954	1.00
7	3/4 -	.180	6.394	6.722	6.914	7.270	7.435	7.817	7.956	8.365	8.476	8.912	8.997	9.460	.750	.788
8	7/8 -	.165	5.889	6.192	6.367	6.694	6.844	7.196	7.321	7.698	7.798	8.200	8.276	8.701	.630	.662
9	1 -	.148	5.312	5.585	5.740	6.035	6.168	6.485	6.596	6.935	7.024	7.385	7.452	7.836	.507	.533
10	9/8 -	.134	4.831	5.079	5.219	5.487	5.606	5.895	5.994	6.302	6.381	6.710	6.769	7.117	.416	.437
11	1 1/8 -	.120	4.346	4.569	4.693	4.934	5.040	5.299	5.387	5.664	5.734	6.029	6.081	6.394	.333	.350
12	5/4 -	.109	3.961	4.165	4.276	4.496	4.592	4.828	4.907	5.159	5.222	5.491	5.538	5.822	.275	.289
13	3 1/2 +	.095	3.468	3.646	3.743	3.935	4.017	4.224	4.292	4.313	4.567	4.802	4.842	5.091	.209	.220
14	7/4 +	.083	3.041	3.198	3.281	3.450	3.521	3.703	3.762	3.955	4.002	4.207	4.242	4.460	.159	.168
15	5/2 -	.072	2.647	2.784	2.856	3.003	3.064	3.222	3.272	3.441	3.480	3.659	3.689	3.878	.120	.126
16	3 +	.065	2.395	2.518	2.583	2.716	2.771	2.914	2.959	3.112	3.147	3.309	3.335	3.507	.098	.103
17	1 1/2 -	.058	2.142	2.252	2.310	2.429	2.478	2.605	2.645	2.781	2.813	2.958	2.981	3.134	.078	.082
18	3/2 +	.049	1.815	1.908	1.956	2.057	2.098	2.206	2.240	2.355	2.382	2.504	2.523	2.653	.056	.058
19	5/4 -	.042	1.559	1.639	1.680	1.767	1.802	1.895	1.923	2.022	2.045	2.150	2.166	2.278	.041	.043
20	....	.035	1.302	1.369	1.403	1.475	1.504	1.582	1.606	1.688	1.707	1.795	1.808	1.901	.028	.030
21	3/2 +	.032	1.191	1.253	1.284	1.350	1.377	1.447	1.469	1.545	1.562	1.642	1.654	1.739	.024	.025
22	3/2 -	.028	1.044	1.097	1.125	1.183	1.206	1.268	1.287	1.353	1.368	1.438	1.449	1.523	.018	.019
23025	.933	.981	1.005	1.057	1.077	1.133							.014	.015
24022													.011	.012
25020													.009	.010

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WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES
Pounds per Linear Foot

No.	Thickness Inches		4 1/4 Inch		5 Inch		5 1/4 Inch		5 1/2 Inch		5 3/4 Inch		6 Inch		I. D. Tubes *Add to O. D. Tubes	
	Nearest Fraction	Dec. Equiv.	4 1/4 Inch		5 Inch		5 1/4 Inch		5 1/2 Inch		5 3/4 Inch		6 Inch		Brass	Copper
			Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper		
3	1/4 +	.259	13.46	14.15	14.21	14.94	14.96	15.73	15.71	16.51	16.45	17.30	17.20	18.09	1.55	1.63
4	3/8 +	.238	12.42	13.06	13.11	13.79	13.80	14.51	14.49	15.24	15.18	15.96	15.87	16.68	1.31	1.38
5	1/2 +	.220	11.53	12.12	12.17	12.79	12.80	13.46	13.44	14.13	14.08	14.80	14.71	15.47	1.12	1.18
6	5/8 +	.203	10.68	11.23	11.27	11.85	11.85	12.46	12.44	13.08	13.03	13.70	13.62	14.32	.954	1.00
7	3/4 -	.180	9.517	10.01	10.04	10.55	10.56	11.10	11.08	11.65	11.60	12.20	12.12	12.74	.750	.788
8	7/8 -	.165	8.753	9.203	9.230	9.705	9.708	10.21	10.18	10.71	10.66	11.21	11.14	11.71	.630	.662
9	1 -	.148	7.880	8.286	8.308	8.736	8.736	9.186	9.165	9.636	9.593	10.09	10.02	10.54	.507	.533
10	1 1/8 -	.134	7.157	7.525	7.544	7.932	7.932	8.340	8.319	8.747	8.707	9.155	9.095	9.562	.416	.437
11	1 1/4 -	.120	6.428	6.759	6.775	7.124	7.122	7.489	7.470	7.854	7.817	8.219	8.164	8.584	.333	.350
12	1 1/2 -	.109	5.853	6.154	6.168	6.485	6.483	6.817	6.799	7.148	7.114	7.480	7.429	7.811	.275	.289
13	1 3/4 -	.095	5.117	5.380	5.391	5.669	5.666	5.958	5.941	6.247	6.216	6.535	6.490	6.824	.209	.220
14	2 -	.083	4.482	4.712	4.722	4.965	4.962	5.217	5.202	5.470	5.442	5.722	5.682	5.974	.159	.168
15	2 1/4 -	.072	3.897	4.097	4.105	4.316	4.313	4.535	4.522	4.754	4.730	4.973	4.938	5.192	.120	.126
16	2 1/2 +	.065	3.523	3.705	3.711	3.902	3.899	4.100	4.087	4.298	4.275	4.495	4.463	4.693	.098	.103
17	2 3/4 -	.058	3.149	3.311	3.316	3.487	3.484	3.663	3.652	3.840	3.820	4.016	3.987	4.193	.078	.082
18	3 -	.049	2.665	2.802	2.807	2.951	2.949	3.100	3.090	3.249	3.232	3.398	3.374	3.547	.056	.058
19	3 1/4 -	.042	2.288	2.405	2.409	2.533	2.531	2.661	2.652	2.789	2.774	2.916	2.895	3.044	.041	.043
20	3 1/2 -	.035	1.909	2.008	2.011	2.114	2.112	2.220	2.213	2.327	2.314	2.433	2.416	2.540	.028	.030
21	3 3/4 +	.032	1.747	1.837	1.839	1.934	1.932	2.031	2.024	2.129					.024	.025
22	4 -	.028													.018	.019
23	4 1/4 -	.025													.014	.015
24	4 1/2 -	.022													.011	.012
25	4 3/4 -	.020													.009	.010

The + sign shows that the fraction is more than 1 per cent. full.

The - sign shows that the fraction is more than 1 per cent. scant.

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**WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES**
Pounds per Linear Foot

Stubs' Gauge Outside Diameter, Inches

No.	Thickness Inches	6 1/4 Inch		6 1/2 Inch		6 3/4 Inch		7 Inch		7 1/4 Inch		7 1/2 Inch		I. D. Tubes *Add to O. D. Tubes	
		Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper
3	1/4 +	17.95	18.88	18.70	19.66	19.45	20.45	20.20	21.24	20.95	22.03	21.70	22.81	1.55	1.63
4	1/4 +	16.55	17.41	17.24	18.13	17.93	18.85	18.62	19.58	19.31	20.30	20.00	21.03	1.31	1.38
5	1/4 +	15.35	16.14	15.99	16.81	16.62	17.48	17.26	18.15	17.89	18.81	18.53	19.48	1.12	1.18
6	1/4 -	14.20	14.93	14.79	15.55	15.38	16.17	15.96	16.79	16.55	17.40	17.14	18.02	.954	1.00
7	1/4 -	12.64	13.29	13.16	13.84	13.68	14.39	14.20	14.93	14.72	15.48	15.24	16.03	.750	.788
8	1/4 -	11.62	12.21	12.09	12.72	12.57	13.22	13.05	13.72	13.53	14.22	14.00	14.72	.630	.662
9	1/4 +	10.45	10.99	10.88	11.44	11.30	11.89	11.73	12.34	12.16	12.79	12.59	13.24	.507	.533
10	1/4 -	9.482	9.970	9.870	10.38	10.26	10.78	10.64	11.19	11.03	11.60	11.42	12.01	.416	.437
11	1/8 -	8.511	8.949	8.858	9.314	9.205	9.679	9.552	10.04	9.899	10.41	10.25	10.77	.333	.350
12	1/8 +	7.745	8.143	8.060	8.474	8.375	8.806	8.690	9.137	9.006	9.469	9.321	9.800	.275	.289
13	3/8 +	6.765	7.113	7.040	7.402	7.315	7.691	7.590	7.980	7.864	8.269	8.139	8.558	.209	.220
14	3/8 +	5.922	6.227	6.162	6.479	6.402	6.732	6.642	6.984	6.883	7.237	7.123	7.489	.159	.168
15	3/8 -	5.147	5.411	5.355	5.630	5.563	5.849	5.771	6.068	5.980	6.287	6.188	6.506	.120	.126
16	1/2 +	4.651	4.891	4.839	5.088	5.027	5.286	5.215	5.484	5.403	5.681	5.591	5.879	.098	.103
17	1/2 -	4.155	4.369	4.323	4.545	4.491	4.722	4.658	4.898	4.826	5.075	4.994	5.251	.078	.082
18	3/4 +	3.516	3.696	3.657	3.845	3.799	3.994	3.941	4.143	4.082	4.292			.056	.058
19	3/4 -	3.017	3.172	3.138	3.300	3.260	3.427	3.381	3.555					.041	.043
20	....													.028	.030
21	3/2 +													.024	.025
22	3/2 -													.018	.019
23	....													.014	.015
24	....													.011	.012
25	....													.009	.010

The + sign shows that the fraction is more than 1 per cent. full.

The - sign shows that the fraction is more than 1 per cent. scant.

* To determine the weight of a tube of a given Inside Diameter, add to weights under Outside Diameter the weights listed in the two right hand columns opposite corresponding gauge numbers.
Variations from these weights must be expected in practice.

WEIGHT OF
SEAMLESS BRASS AND COPPER TUBES
Pounds per Linear Foot

Stubs' Gauge Outside Diameter, Inches

No.	Thickness Inches	7¼ Inch		8 Inch		8½ Inch		9 Inch		9½ Inch		10 Inch		I. D. Tubes *Add to O. D. Tubes	
		Nearest Fraction	Dec. Equiv.	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper	Brass	Copper
3	¾ +		.259	22.45	23.60	23.20	24.39	24.70	25.97	26.19	27.54	29.19	30.69	1.55	1.63
4	¾ +		.238	20.69	21.75	21.37	22.47	22.75	23.92	24.13	25.37	26.88	28.26	1.31	1.38
5	¾ +		.220	19.17	20.15	19.80	20.82	21.08	22.16	22.35	23.50	24.89	26.17	1.12	1.18
6	¾ +		.203	17.73	18.64	18.31	19.25	19.49	20.49	20.66	21.72	23.01	24.19	.954	1.00
7	¾ +		.180	15.77	16.58	16.29	17.12	17.33	18.22	18.37	19.31	20.45	21.50	.750	.788
8	¾ +		.165	14.48	15.22	14.96	15.73	15.91	16.73	16.87	17.73	18.78	19.74	.630	.662
9	¾ +		.148	13.02	13.69	13.45	14.14	14.30	15.04	15.16	15.94	16.87	17.74	.507	.533
10	¾ +		.134	11.81	12.42	12.20	12.82	12.97	13.64	13.75	14.45	15.30	16.08	.416	.437
11	¾ -		.120	10.59	11.14	10.94	11.50	11.63	12.23	12.33	12.96	13.72	14.42	.333	.350
12	¾ -		.109	9.636	10.13	9.952	10.46	10.58	11.13	11.21	11.79	12.47	13.12	.275	.289
13	¾ +		.095	8.414	8.847	8.689	9.136	9.238	9.714	9.788	10.29	10.89	11.45	.209	.220
14	¾ +		.083	7.363	7.741	7.603	7.994	8.083	8.499	8.563	9.004			.159	.168
15	¾ +		.072	6.396	6.725	6.604	6.944	7.021	7.382	7.437	7.820			.120	.126
16	¾ +		.065	5.779	6.077	5.968	6.274	6.344	6.670	6.720	7.065			.098	.103
17	¾ -		.058	5.162	5.427									.078	.082
18	¾ +		.049											.056	.058
19	¾ -		.042											.041	.043
20	...		.035											.028	.030
21	¾ +		.032											.024	.025
22	¾ -		.028											.018	.019
23	...		.025											.014	.015
24	...		.022											.011	.012
25	...		.020											.009	.010

The + sign shows that the fraction is more than 1 per cent. full.

The - sign shows that the fraction is more than 1 per cent. scant.

* To determine the weight of a tube of a given Inside Diameter, add to weights under Outside Diameter the weights listed in the two right hand columns opposite corresponding gauge numbers.
Variations from these weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

Weight per Foot of
BRAZED BRASS TUBES

Outside Measurement
Brown and Sharpe's Gauge

Gauge	Decimal Equiv. Inches	Diameter in Inches and Pounds per Foot								
		$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
No. 12	.08081							.515	.633	.870
13	.07196							.466	.571	.782
14	.06408					.233	.327	.421	.515	.702
15	.05707				.171	.212	.296	.380	.463	.630
16	.05082			.119	.156	1.93	.267	.342	.416	.565
17	.04526			.109	.142	.175	.241	.307	.373	.506
18	.04030		.069	.099	.128	.158	.217	.276	.335	.453
19	.03589		.064	.090	.116	.143	.195	.248	.300	.405
20	.03196	.035	.058	.082	.105	.128	.175	.222	.269	.362
21	.02846	.032	.053	.074	.095	.115	.157	.199	.240	.324
22	.02535	.030	.048	.067	.085	.104	.141	.178	.215	.289
23	.02257	.027	.044	.060	.077	.093	.126	.159	.192	.258
24	.02010	.025	.039	.054	.069	.084	.113	.142	.172	.231

Gauge	Decimal Equiv. Inches	Diameter in Inches and Pounds per Foot							
		$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3
No. 12	.08081	1.106	1.343	1.579	1.816	2.052	2.289	2.525	2.762
13	.07196	.993	1.203	1.414	1.625	1.835	2.046	2.257	2.467
14	.06408	.890	1.077	1.265	1.453	1.640	1.828	2.015	2.203
15	.05707	.797	.964	1.131	1.298	1.465	1.632	1.799	1.966
16	.05082	.714	.862	1.011	1.160	1.309	1.457	1.606	1.755
17	.04526	.638	.771	.903	1.036	1.168	1.301	1.433	1.566
18	.04030	.571	.689	.807	.925	1.043	1.161	1.279	1.397
19	.03589	.510	.615	.720	.825	.930	1.036	1.141	1.246
20	.03196	.456	.549	.643	.737	.830			
21	.02846	.407	.490	.574	.657				
22	.02535	.363	.438	.512	.586				
23	.02257	.324	.390	.457					
24	.02010	.289	.348	.407					

Variations from these weights must be expected in practice.

BRASS WIRE

Weight in Pounds per Linear Foot

B. & S. Gauge	Weight	B. & S. Gauge	Weight
0000	.6079	19	.003701
000	.4821	20	.002935
00	.3823	21	.002327
0	.3032	22	.001846
1	.2404	23	.001464
2	.1907	24	.001161
3	.1512	25	.0009205
4	.1199	26	.0007300
5	.09510	27	.0005789
6	.07542	28	.0004591
7	.05981	29	.0003641
8	.04743	30	.0002887
9	.03761	31	.0002290
10	.02983	32	.0001816
11	.02366	33	.0001440
12	.01876	34	.0001142
13	.01488	35	.00009057
14	.01180	36	.00007182
15	.009356	37	.00005696
16	.007420	38	.00004517
17	.005884	39	.00003582
18	.004667	40	.00002841
		.001 "	.000002873

ANACONDA SEAMLESS BRASS TUBES

PLUMBERS' SIZES

Size	Diameter Inches		Pounds per Foot	
	Outside	Inside	Brass	Copper
5/8	.654	.521	.452	.475
3/4	.768	.631	.554	.583
7/8	.875	.728	.682	.717
1	1.000	.836	.871	.916
1 1/4	1.245	1.060	1.233	1.297
1 1/2	1.508	1.311	1.606	1.689
1 3/4	1.756	1.564	1.844	1.939
2	2.007	1.815	2.123	2.232

Variations from these weights must be expected in practice.

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

WEIGHT OF COPPER WIRE

B. & S. Gauge No.	Diameter in Mils at 20° C	Cross Section at 20° C		Weight and Length	
		Circular Mils	Square Inches	Pounds per 1000 Ft.	Feet per Pound
0000	460.0	211600.	0.1662	640.5	1.561
000	409.6	167800.	.1318	507.9	1.968
00	364.8	133100.	.1045	402.8	2.482
0	324.9	105500.	.08289	319.5	3.130
1	289.3	83690.	.06573	253.3	3.947
2	257.6	66370.	.05213	200.9	4.977
3	229.4	52640.	.04134	159.3	6.276
4	204.3	41740.	.03278	126.4	7.914
5	181.9	33100.	.02600	100.2	9.980
6	162.0	26250.	.02062	79.46	12.58
7	144.3	20820.	.01635	63.02	15.87
8	128.5	16510.	.01297	49.98	20.01
9	114.4	13090.	.01028	39.63	25.23
10	101.9	10380.	.008155	31.43	31.82
11	90.74	8234.	.006467	24.92	40.12
12	80.81	6530.	.005129	19.77	50.59
13	71.96	5178.	.004067	15.68	63.80
14	64.08	4107.	.003225	12.43	80.44
15	57.07	3257.	.002558	9.858	101.4
16	50.82	2583.	.002028	7.818	127.9
17	45.26	2048.	.001609	6.200	161.3
18	40.30	1624.	.001276	4.917	203.4
19	35.89	1288.	.001012	3.899	256.5
20	31.96	1022.	.0008023	3.092	323.4

Variations from these weights must be expected in practice.

RESISTANCE OF COPPER WIRE

Resistance at 20° C or 68° Fahr. 1 Meter Gram = .15328 Ohms

B. & S. Gauge No.	Resistance and Length		Resistance and Weight	
	Ohms per 1000 Ft.	Feet per Ohm	Ohms per Pound	Pounds per Ohm
0000	0.04901	20400.	0.00007652	13070.
000	.06180	16180.	.0001217	8219.
00	.07793	12830.	.0001935	5169.
0	.09827	10180.	.0003076	3251.
1	.1239	8070.	.0004891	2044.
2	.1563	6400.	.0007778	1286.
3	.1970	5075.	.001237	808.6
4	.2485	4025.	.001966	508.5
5	.3133	3192.	.003127	319.8
6	.3951	2531.	.004972	201.1
7	.4982	2007.	.007905	126.5
8	.6282	1592.	.01257	79.55
9	.7921	1262.	.01999	50.03
10	.9989	1001.	.03178	31.47
11	1.260	794.0	.05053	19.79
12	1.588	629.6	.08035	12.45
13	2.003	499.3	.1278	7.827
14	2.525	396.0	.2032	4.922
15	3.184	314.0	.3230	3.096
16	4.016	249.0	.5136	1.947
17	5.064	197.5	.8167	1.224
18	6.385	156.6	1.299	0.7700
19	8.051	124.2	2.065	.4843
20	10.15	98.50	3.283	.3046

Variations from these values must be expected in practice.

INCHES AND EQUIVALENTS IN MILLIMETERS

Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM
1/64	.397	45/64	17.859	26	660.4	70	1778.0	114	2895.6	158	4013.2
1/32	.794	23/32	18.256	27	685.8	71	1803.4	115	2921.0	159	4038.6
3/64	1.191	47/64	18.653	28	711.2	72	1828.8	116	2946.4	160	4064.0
1/16	1.588	3/4	19.050	29	637.6	73	1854.2	117	2971.8	161	4089.4
5/64	1.984	49/64	19.447	30	762.0	74	1879.6	118	2997.2	162	4114.8
3/32	2.381	25/32	19.844	31	787.4	75	1905.0	119	3022.6	163	4140.2
7/64	2.778	51/64	20.241	32	812.8	76	1930.4	120	3048.0	164	4165.6
1/8	3.175	13/16	20.638	33	838.2	77	1955.8	121	3073.4	165	4191.0
9/64	3.572	53/64	21.034	34	863.6	78	1981.2	122	3098.8	166	4216.4
5/32	3.969	27/32	21.431	35	889.0	79	2006.6	123	3124.2	167	4241.8
11/64	4.366	55/64	21.828	36	914.4	80	2032.0	124	3149.6	168	4267.2
3/16	4.763	7/8	22.225	37	939.8	81	2057.4	125	3175.0	169	4292.6
13/64	5.159	57/64	22.622	38	965.2	82	2082.8	126	3200.4	170	4318.0
7/32	5.556	29/32	23.019	39	990.6	83	2108.2	127	3225.8	171	4343.4
15/64	5.953	59/64	23.416	40	1016.0	84	2133.6	128	3251.2	172	4368.8
1/4	6.350	15/16	23.813	41	1041.4	85	2159.0	129	3276.6	173	4394.2
17/64	6.747	61/64	24.209	42	1066.8	86	2184.4	130	3302.0	174	4419.6
9/32	7.144	31/32	24.606	43	1092.2	87	2209.8	131	3327.4	175	4445.0
19/64	7.540	63/64	25.003	44	1117.6	88	2235.2	132	3352.8	176	4470.4
5/16	7.938	1	25.400	45	1143.0	89	2260.6	133	3378.2	177	4495.8
21/64	8.334	2	50.8	46	1168.4	90	2286.0	134	3403.6	178	4521.2
11/32	8.731	3	76.2	47	1193.8	91	2311.4	135	3429.0	179	4546.6
23/64	9.128	4	101.6	48	1219.2	92	2336.8	136	3454.4	180	4572.0
3/8	9.525	5	127.0	49	1244.6	93	2362.2	137	3479.8	181	4597.4
25/64	9.922	6	152.4	50	1270.0	94	2387.6	138	3505.2	182	4622.8
13/32	10.319	7	177.8	51	1295.4	95	2413.0	139	3530.6	183	4648.2
27/64	10.716	8	203.2	52	1320.8	96	2438.4	140	3556.0	184	4673.6
7/16	11.113	9	228.6	53	1346.2	97	2463.8	141	3581.4	185	4699.0
29/64	11.509	10	254.0	54	1371.6	98	2489.2	142	3606.8	186	4724.4
15/32	11.906	11	279.4	55	1397.0	99	2514.6	143	3632.2	187	4749.8
31/64	12.303	12	304.8	56	1422.4	100	2540.0	144	3657.6	188	4775.2
1/2	12.700	13	330.2	57	1447.8	101	2565.4	145	3683.0	189	4800.6
33/64	13.097	14	355.6	58	1473.2	102	2590.8	146	3708.4	190	4826.0
17/32	13.494	15	381.0	59	1498.6	103	2616.2	147	3733.8	191	4851.4
35/64	13.891	16	406.4	60	1524.0	104	2641.6	148	3759.2	192	4876.8
9/16	14.288	17	431.8	61	1549.4	105	2667.0	149	3784.6	193	4902.2
37/64	14.684	18	457.2	62	1574.8	106	2692.4	150	3810.0	194	4927.6
19/32	15.081	19	482.6	63	1600.2	107	2717.8	151	3835.4	195	4953.0
39/64	15.478	20	508.0	64	1625.6	108	2743.2	152	3860.8	196	4978.4
5/8	15.875	21	533.4	65	1651.0	109	2768.6	153	3886.2	197	5003.8
41/64	16.272	22	558.8	66	1676.4	110	2794.0	154	3911.6	198	5029.2
21/32	16.669	23	584.2	67	1701.8	111	2819.4	155	3937.0	199	5054.6
43/64	17.066	24	609.6	68	1727.2	112	2844.8	156	3962.4	200	5080.0
11/16	17.463	25	635.0	69	1752.6	113	2870.2	157	3987.8		

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

MILLIMETERS AND EQUIVALENTS IN INCHES

MM	Inches	MM	Inches	MM	Inches	MM	Inches
1/100	.0004	51/100	.0201	2	.0787	52	2.0472
2/100	.0008	52/100	.0205	3	.1181	53	2.0866
3/100	.0012	53/100	.0209	4	.1575	54	2.1260
4/100	.0016	54/100	.0213	5	.1969	55	2.1654
5/100	.0020	55/100	.0217	6	.2362	56	2.2047
6/100	.0024	56/100	.0221	7	.2756	57	2.2441
7/100	.0028	57/100	.0224	8	.3150	58	2.2835
8/100	.0031	58/100	.0228	9	.3543	59	2.3228
9/100	.0035	59/100	.0232	10	.3937	60	2.3622
10/100	.0039	60/100	.0236	11	.4331	61	2.4016
11/100	.0043	61/100	.0240	12	.4724	62	2.4409
12/100	.0047	62/100	.0244	13	.5118	63	2.4803
13/100	.0051	63/100	.0248	14	.5512	64	2.5197
14/100	.0055	64/100	.0252	15	.5906	65	2.5591
15/100	.0059	65/100	.0256	16	.6299	66	2.5984
16/100	.0063	66/100	.0260	17	.6693	67	2.6378
17/100	.0067	67/100	.0264	18	.7087	68	2.6772
18/100	.0071	68/100	.0268	19	.7480	69	2.7165
19/100	.0075	69/100	.0272	20	.7874	70	2.7559
20/100	.0079	70/100	.0276	21	.8268	71	2.7953
21/100	.0083	71/100	.0280	22	.8661	72	2.8346
22/100	.0087	72/100	.0284	23	.9055	73	2.8740
23/100	.0091	73/100	.0287	24	.9449	74	2.9134
24/100	.0094	74/100	.0291	25	.9843	75	2.9528
25/100	.0098	75/100	.0295	26	1.0236	76	2.9921
26/100	.0102	76/100	.0299	27	1.0630	77	3.0315
27/100	.0106	77/100	.0303	28	1.1024	78	3.0709
28/100	.0110	78/100	.0307	29	1.1417	79	3.1102
29/100	.0114	79/100	.0311	30	1.1811	80	3.1496
30/100	.0118	80/100	.0315	31	1.2205	81	3.1890
31/100	.0122	81/100	.0319	32	1.2598	82	3.2283
32/100	.0126	82/100	.0323	33	1.2992	83	3.2677
33/100	.0130	83/100	.0327	34	1.3386	84	3.3071
34/100	.0134	84/100	.0331	35	1.3780	85	3.3465
35/100	.0138	85/100	.0335	36	1.4173	86	3.3858
36/100	.0142	86/100	.0339	37	1.4567	87	3.4252
37/100	.0146	87/100	.0343	38	1.4961	88	3.4646
38/100	.0150	88/100	.0347	39	1.5354	89	3.5039
39/100	.0154	89/100	.0350	40	1.5748	90	3.5433
40/100	.0158	90/100	.0354	41	1.6142	91	3.5827
41/100	.0161	91/100	.0358	42	1.6535	92	3.6220
42/100	.0165	92/100	.0362	43	1.6929	93	3.6614
43/100	.0169	93/100	.0366	44	1.7323	94	3.7008
44/100	.0173	94/100	.0370	45	1.7717	95	3.7402
45/100	.0177	95/100	.0374	46	1.8110	96	3.7795
46/100	.0181	96/100	.0378	47	1.8504	97	3.8189
47/100	.0185	97/100	.0382	48	1.8898	98	3.8583
48/100	.0189	98/100	.0386	49	1.9291	99	3.8976
49/100	.0193	99/100	.0390	50	1.9685	100	3.9370
50/100	.0197	1	.0394	51	2.0079	101	3.9764

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

MILLIMETERS AND EQUIVALENTS IN INCHES—Continued

MM	Inches	MM	Inches	MM	Inches	MM	Inches
102	4.0157	152	5.9842	202	7.9527	252	9.9212
103	4.0551	153	6.0236	203	7.9921	253	9.9606
104	4.0945	154	6.0630	204	8.0315	254	10.000
105	4.1339	155	6.1024	205	8.0709	255	10.039
106	4.1732	156	6.1417	206	8.1102	256	10.079
107	4.2126	157	6.1811	207	8.1496	257	10.118
108	4.2520	158	6.2205	208	8.1890	258	10.157
109	4.2913	159	6.2598	209	8.2283	259	10.197
110	4.3307	160	6.2992	210	8.2677	260	10.236
111	4.3701	161	6.3386	211	8.3071	261	10.276
112	4.4094	162	6.3779	212	8.3464	262	10.315
113	4.4488	163	6.4173	213	8.3858	263	10.354
114	4.4882	164	6.4567	214	8.4252	264	10.394
115	4.5276	165	6.4961	215	8.4646	265	10.433
116	4.5669	166	6.5354	216	8.5039	266	10.472
117	4.6063	167	6.5748	217	8.5433	267	10.512
118	4.6457	168	6.6142	218	8.5827	268	10.551
119	4.6850	169	6.6535	219	8.6220	269	10.591
120	4.7244	170	6.6929	220	8.6614	270	10.630
121	4.7638	171	6.7323	221	8.7008	271	10.669
122	4.8031	172	6.7716	222	8.7401	272	10.709
123	4.8425	173	6.8110	223	8.7795	273	10.748
124	4.8819	174	6.8504	224	8.8189	274	10.787
125	4.9213	175	6.8898	225	8.8583	275	10.827
126	4.9606	176	6.9291	226	8.8976	276	10.866
127	5.0000	177	6.9685	227	8.9370	277	10.905
128	5.0394	178	7.0079	228	8.9764	278	10.945
129	5.0787	179	7.0472	229	9.0157	279	10.984
130	5.1181	180	7.0866	230	9.0551	280	11.024
131	5.1575	181	7.1260	231	9.0945	281	11.063
132	5.1968	182	7.1653	232	9.1338	282	11.102
133	5.2362	183	7.2047	233	9.1732	283	11.142
134	5.2756	184	7.2441	234	9.2126	284	11.181
135	5.3150	185	7.2835	235	9.2520	285	11.220
136	5.3543	186	7.3228	236	9.2913	286	11.260
137	5.3937	187	7.3622	237	9.3307	287	11.299
138	5.4331	188	7.4016	238	9.3701	288	11.339
139	5.4724	189	7.4409	239	9.4094	289	11.378
140	5.5118	190	7.4803	240	9.4488	290	11.417
141	5.5512	191	7.5197	241	9.4882	291	11.457
142	5.5905	192	7.5590	242	9.5275	292	11.496
143	5.6299	193	7.5984	243	9.5669	293	11.535
144	5.6693	194	7.6378	244	9.6063	294	11.575
145	5.7087	195	7.6772	245	9.6457	295	11.614
146	5.7480	196	7.7165	246	9.6850	296	11.654
147	5.7874	197	7.7559	247	9.7244	297	11.693
148	5.8268	198	7.7953	248	9.7638	298	11.732
149	5.8661	199	7.8346	249	9.8031	299	11.772
150	5.9055	200	7.8740	250	9.8425		
151	5.9449	201	7.9134	251	9.8819		

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

TABLE OF
POUND EQUIVALENTS IN KILOGRAMS

Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms
1	.4535	35	15.8725	69	31.2915
2	.9070	36	16.3260	70	31.7450
3	1.3605	37	16.7795	71	32.1985
4	1.8140	38	17.2330	72	32.6520
5	2.2675	39	17.6865	73	33.1055
6	2.7210	40	18.14	74	33.5590
7	3.1745	41	18.5935	75	34.0125
8	3.6280	42	19.0470	76	34.4660
9	4.0815	43	19.5005	77	34.9195
10	4.5350	44	19.9540	78	35.3730
11	4.9885	45	20.4075	79	35.8265
12	5.4420	46	20.8610	80	36.28
13	5.8955	47	21.3145	81	36.7335
14	6.3490	48	21.7680	82	37.1870
15	6.8025	49	22.2215	83	37.6405
16	7.2560	50	22.6750	84	38.0940
17	7.7095	51	23.1285	85	38.5475
18	8.1630	52	23.5820	86	39.0010
19	8.6165	53	24.0355	87	39.4545
20	9.07	54	24.4890	88	39.9080
21	9.5235	55	24.9425	89	40.3615
22	9.9770	56	25.3960	90	40.8150
23	10.4305	57	25.8495	91	41.2685
24	10.8840	58	26.3030	92	41.7220
25	11.3375	59	26.7565	93	42.1755
26	11.7910	60	27.21	94	42.6290
27	12.2445	61	27.6635	95	43.0825
28	12.6980	62	28.1170	96	43.5360
29	13.1515	63	28.5705	97	43.9895
30	13.6050	64	29.0240	98	44.4430
31	14.0585	65	29.4775	99	44.8965
32	14.5120	66	29.9310	100	45.35
33	14.9655	67	30.3845		
34	15.4190	68	30.8380		

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

GAUGE NUMBERS AND MILLIMETER EQUIVALENTS

Gauge No.	American or Brown & Sharpe's		Birmingham or Stubs'	
	Inches	Millimeters	Inches	Millimeters
000000	.5800	14.732		
00000	.5165	13.119		
0000	.4600	11.684		
000	.4096	10.404	.454	11.532
00	.3648	9.266	.425	10.795
0	.3249	8.252	.380	9.652
1	.2893	7.348	.340	8.636
2	.2576	6.543	.300	7.620
3	.2294	5.827	.284	7.214
4	.2043	5.189	.259	6.579
5	.1819	4.620	.238	6.045
6	.1620	4.115	.220	5.588
7	.1443	3.665	.203	5.156
8	.1285	3.264	.180	4.572
9	.1144	2.906	.165	4.191
10	.1019	2.588	.148	3.759
11	.09074	2.305	.134	3.404
12	.08081	2.053	.120	3.048
13	.07196	1.828	.109	2.769
14	.06408	1.628	.095	2.413
15	.05707	1.450	.083	2.108
16	.05082	1.291	.072	1.829
17	.04526	1.150	.065	1.651
18	.04030	1.024	.058	1.473
19	.03589	.912	.049	1.245
20	.03196	.812	.042	1.067
21	.02846	.723	.035	.889
22	.02535	.644	.032	.813
23	.02257	.573	.028	.711
24	.02010	.511	.025	.635
25	.01790	.455	.022	.559
26	.01594	.405	.020	.508
27	.01420	.361	.018	.457
28	.01264	.321	.016	.406
29	.01126	.286	.014	.356
30	.01003	.255	.013	.330
31	.008928	.227	.012	.305
32	.007950	.202	.010	.254
33	.007080	.180	.009	.229
34	.006305	.160	.008	.203
35	.005615	.143	.007	.178
36	.005000	.127	.005	.127
37	.004453	.113	.004	.102
38	.003965	.101		
39	.003531	.090		
40	.003145	.080		
41	.002800	.071		
42	.002494	.063		
43	.002221	.056		
44	.001978	.050		

CONVERSION TABLES

Weight and Measures

Metric and English

Length

1 mil	=	.001	inch
	=	.025400	millimeter
	=	.0025400	centimeter
1 inch	=	1000	mils
	=	25.400	millimeters
	=	2.5400	centimeters
1 foot	=	30.480	centimeters
	=	.30480	meter
1 yard	=	91.440	centimeters
	=	.9144	meter
1 mile	=	1609.4	meters
	=	1.6094	kilometers
1 millimeter	=	39.370	mils
	=	.039370	inch
1 centimeter	=	.39370	inch
	=	.032808	foot
1 meter	=	39.370	inches
	=	3.2808	feet
1 kilometer	=	3280.8	feet
	=	.62137	mile

Surface

1 circ. mil	=	.78540	square mil
	=	.000001	circ. inch
	=	.00064516	circ. millimeter
1 sq. mil	=	1.2732	circ. mils
	=	.000001	square inch
	=	.00064516	square millimeter
1 circ. inch	=	1000000	circ. mils
	=	645.16	circ. millimeters
	=	6.4516	circ. centimeters
1 square inch	=	1000000	square mils
	=	1273240	circ. mils
	=	645.16	square millimeters
	=	6.4516	square centimeters
1 square foot	=	929.03	square centimeters
1 circ. millimeter	=	1550.0	circ. mils
1 circ. centimeter	=	155000	circ. mils
1 circ. centimeter	=	.15500	circ. inch
1 square millimeter	=	1973.5	circ. mils
	=	.0015500	square inch
1 square centimeter	=	197352	circ. mils
	=	.15500	square inch

Volume

1 cubic inch	=	16.387	cubic centimeters
1 cubic foot	=	28317	cubic centimeters
1 cubic centimeter	=	.061023	cubic inch

Weight

1 pound (avoir)	=	453.59	grams
1 gram	=	.0022046	pound (avoir)
1 kilogram	=	2.2046	pounds (avoir)

FRACTIONS OF AN INCH, AND DECIMAL
EQUIVALENTS

8	16	32	64	Decimal	8	16	32	64	Decimal
1	1	1	1	.015625	5	9	17	33	.515625
			3	.03125				35	.53125
		3	5	.046875			19	37	.546875
			7	.0625				39	.5625
			9	.078125				41	.578125
	3	5	11	.09375		11	21	43	.59375
			13	.109375				45	.609375
		7	15	.125			23	47	.625
			17	.140625				49	.640625
			19	.15625				51	.65625
2	5	11	21	.171875	6	13	25	53	.671875
			23	.1875				55	.6875
		13	25	.203125			27	57	.703125
			27	.21875				59	.71875
			29	.234375				61	.734375
	7	15	31	.25		15	31	63	.75
			33	.265625				65	.765625
		17	35	.28125			33	67	.78125
			37	.296875				69	.796875
			39	.3125				71	.8125
3	11	17	41	.328125	7	17	35	73	.828125
			43	.34375				75	.84375
		19	45	.359375			37	77	.859375
			47	.375				79	.875
			49	.390625				81	.890625
	13	21	51	.40625		19	39	83	.90625
			53	.421875				85	.921875
		23	55	.4375			41	87	.9375
			57	.453125				89	.953125
			59	.46875				91	.96875
4	15	25	61	.484375	8	21	43	93	.984375
			63	.5				95	1.
		27	65				45	97	
			67					99	
			69					101	
	17	29	71			23	47	103	
			73					105	
		31	75				49	107	
			77					109	
			79					111	

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

COMPARISON OF WIRE GAUGES

Gauge No.	American or Brown & Sharpe's	Birmingham or Stubs'	Wash. & Moen	Imperial S. W. G.	London or Old English	United States Standard	Gauge No.
0000000			.490	.500		.500	0000000
000000	.5800		.460	.464		.46875	000000
00000	.5165		.430	.432		.4375	00000
0000	.4600	.454	.3938	.400	.454	.40625	0000
000	.4096	.425	.3625	.372	.425	.375	000
00	.3648	.380	.3310	.348	.38	.34375	00
0	.3249	.340	.3065	.324	.34	.3125	0
1	.2893	.300	.2830	.300	.3	.28125	1
2	.2576	.284	.2625	.276	.284	.265625	2
3	.2294	.259	.2437	.252	.259	.25	3
4	.2043	.238	.2253	.232	.238	.234375	4
5	.1819	.220	.2070	.212	.22	.21875	5
6	.1620	.203	.1920	.192	.203	.203125	6
7	.1443	.180	.1770	.176	.18	.1875	7
8	.1285	.165	.1620	.160	.165	.171875	8
9	.1144	.148	.1483	.144	.148	.15625	9
10	.1019	.134	.1350	.128	.134	.140625	10
11	.09074	.120	.1205	.116	.12	.125	11
12	.08081	.109	.1055	.104	.109	.109375	12
13	.07196	.095	.0915	.092	.095	.09375	13
14	.06408	.083	.0800	.080	.083	.078125	14
15	.05707	.072	.0720	.072	.072	.0703125	15
16	.05082	.065	.0625	.064	.065	.0625	16
17	.04526	.058	.0540	.056	.058	.05625	17
18	.04030	.049	.0475	.048	.049	.05	18
19	.03589	.042	.0410	.040	.040	.04375	19
20	.03196	.035	.0348	.036	.035	.0375	20
21	.02846	.032	.03175	.032	.0315	.034375	21
22	.02535	.028	.0286	.028	.0295	.03125	22
23	.02257	.025	.0258	.024	.027	.028125	23
24	.02010	.022	.0230	.022	.025	.025	24
25	.01790	.020	.0204	.020	.023	.021875	25
26	.01594	.018	.0181	.018	.0205	.01875	26
27	.01420	.016	.0173	.0164	.0187	.0171875	27
28	.01264	.014	.0162	.0148	.0165	.015625	28
29	.01126	.013	.0150	.0136	.0155	.0140625	29
30	.01003	.012	.0140	.0124	.01372	.0125	30
31	.008928	.010	.0132	.0116	.0122	.0109375	31
32	.007950	.009	.0128	.0108	.0112	.01015625	32
33	.007080	.008	.0118	.0100	.0102	.009375	33
34	.006305	.007	.0104	.0092	.0095	.00859375	34
35	.005615	.005	.0095	.0084	.009	.0078125	35
36	.005000	.004	.0090	.0076	.0075	.00703125	36
37	.004453		.0085	.0068	.0065	.006640625	37
38	.003965		.008	.0060	.0057	.00625	38
39	.003531		.0075	.0052	.005		39
40	.003145		.007	.0048	.0045		40
41	.002800			.0044			41
42	.002494			.004			42
43	.002221			.0036			43
44	.001978			.0032			44
45	.001761			.0028			45
46	.001568			.0024			46
47	.001397			.002			47
48	.001244			.0016			48
49	.001018			.0012			49
50	.0009863			.001			50

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